

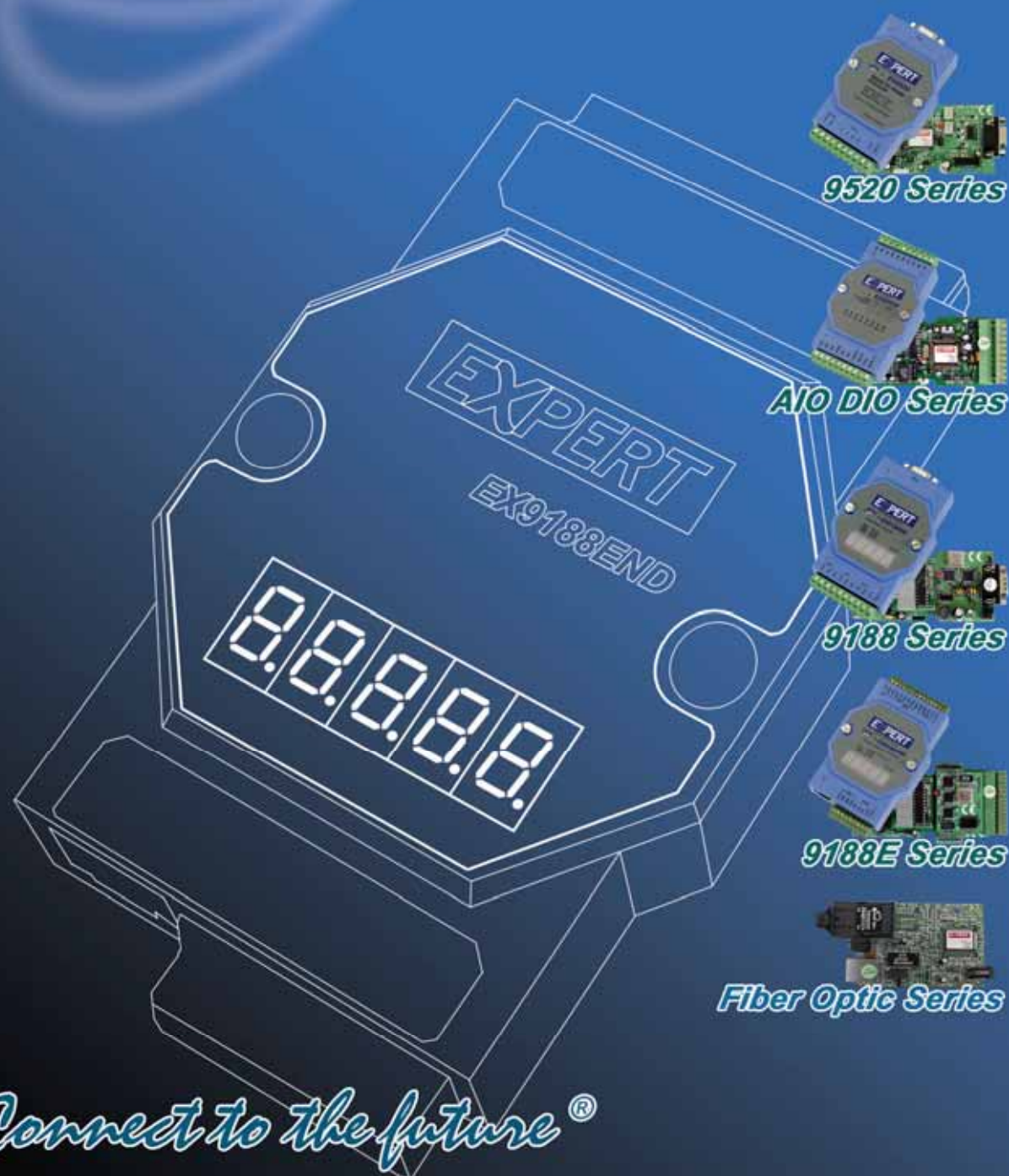


## ***Remote I/O module (DAQ)***

***& Control module***

***& TCP/IP System***

***& Internet embedded controller***



*Connect to the future®*

## TOPSCCC

Since 1987 Tops CCC have been manufacturing and supplying quality products that incorporate the latest technology to the worldwide. Moreover, we have OEM service provided that meeting different requirement from clients. Our product lines include a wide variety of products such as Main Board, VGA card, I/O interface, etc. For keeping you ahead of the competition, we continue to develop innovative items designed to meet current market demands.

Now we are also in Industry PC business. We divide into IPC and PC departments and have an excellent R&D team for IPC. Our products include Remote Data Acquisition & Control Modules, TCP/IP system, Internet Embedded Controller, Embedded Board, SBC, etc. We expect our IPC business will grow every year and replace PC business in few years. Next June, we will make more effort on System integration, Optic-micro-mechanical-electrical, OEM and ODM. TOPS CCC must be your best partner in IPC business.

## Product Range

1. RS232 to RS485 Converter: EX9520/A/R/AR
2. Data Acquisition Remote I/O Module: EX9000 series
3. Industrial Embedded Board: EX9188AD/BD/CD series, EX9188A5D/EX9188A8D series
4. Internet/Ethernet Communication Controller: EX9188END series, EX9188END-MTCP series
5. Embedded Board: EX9670/9671, EX9680/9681, EX9588, EX9529, etc.
6. Single Board Controller: EX9666, EX9696, EX9697, EX3782, EX3784, etc.
7. Linux Embedded Board
8. EViSP (Virtual Com driver)
9. Fiber Optic to RS232/422/485 Converter: EX9541/9542
10. Fiber Optic to Ethernet Converter: EX9543
11. Micro PLC (EX9188EXD-MTCP with I/O Expansion bus)
12. OEM / ODM
13. KVM Switch: EX92102, EX96104, etc
14. Industrial Chassis: EX9110, EX9212, etc
15. Backplane: BP-96S, IPX-914S3, etc
16. PC104: EX9893, EX9842, etc

## New Interface of converter

1. EX9000-M series
2. I/O Expansion board
3. GSM/GPRS & Wireless Lan
4. Linux Micro PLC with Internet

## Specialist for:

1. Valve Control
2. Factory Automation
3. Building/Office Automation
4. Sensing Element Design
5. Electronic-Hydraulic

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PCISA Backplane: IP-914S3, IP-914S, IP-97SA  
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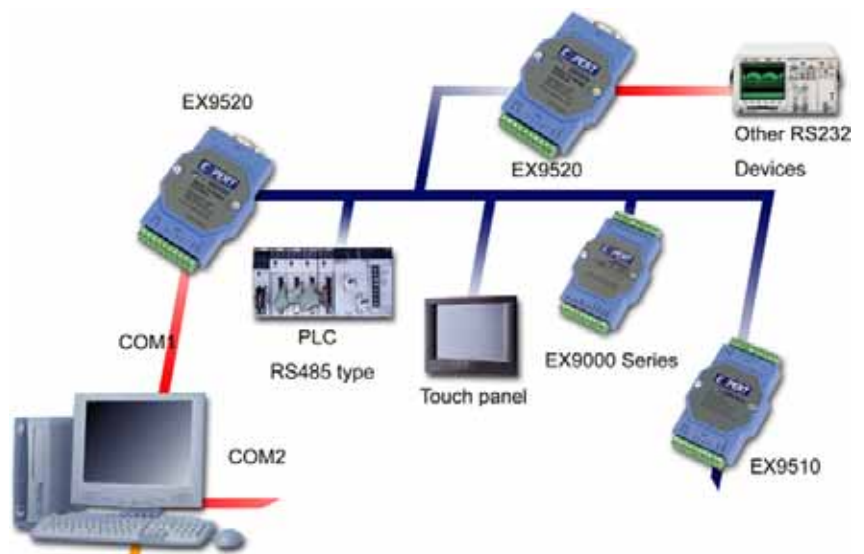
### EX9000/EX9000-Modbus Series

EX9000 Series provide high quality and high cost-effective for valuable Industry control network and system.

We offer the full range as Digital I/O , Analog I/O, Time/Counter, RS232 to RS485/422, GSM/GPRS & Wireless Lan Module & Ethernet to Modbus Data Gateway & Fiber Optic & USB converter, Repeater, main frame interface, data display and application software.

#### EX9000/EX9000-Modbus Series Feature:

- "AutoPro" function inside
- All-in-one function
- Industrial spec
- Watchdog design
- High speed Isolation
- Microprocessor built-in
- I/O Range Programmable
- Wide Range power input(35/48 VDC available)
- Din-Rail & Panel/wall & piggyback
- Complete software environment



### What's AutoPro



"AutoPro" inside design

PAT.NO. : 90303288  
PAT.NO. : 90301256

"AutoPro" function are built in RS232 to RS485 converter to solve different baud rate & data format for the whole RS-485 network.

Almost RS232 to RS485 converter in the market using DIP switch select baud rate & data format. But our "AutoPro" is auto configured to the same baud rate & data format in whole RS-485 network.

So, EX9520/A/R/AR can connect to different baud rate & data format in the same network automatically. As NETWORK diagram.

### EX9510/A

The EX-9510 repeater boosts the RS-422/485 signals to extend the reach distance up to 4000 ft (1200m) and increase the maximum number of connected nodes up to 128. With a special circuitry, EX-9510 is able to automatically detect the data flow and switch the direction of the data lines accordingly.

“Auto baud rate detector” enables EX-9510 to automatically configure RS-422/485 signals to any baud rate without external switch setting.

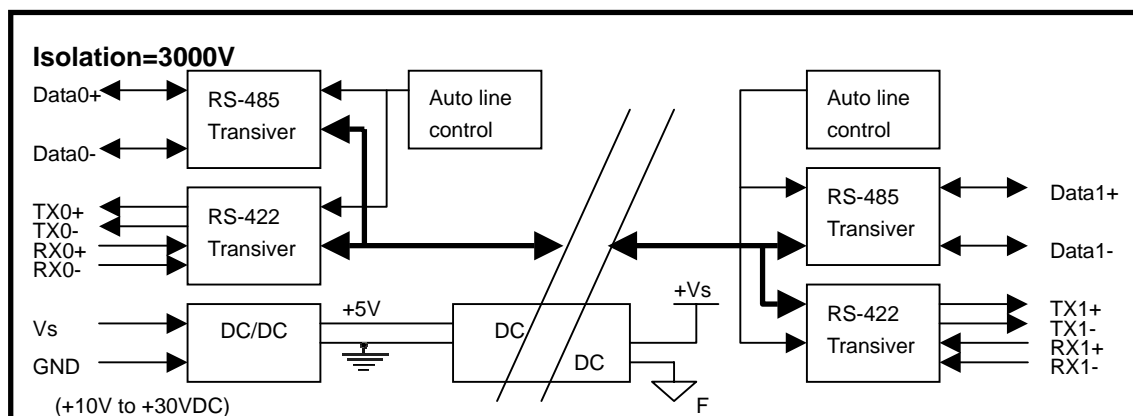
Build in Opto-isolations on EX-9510 provides 3000VDC of isolation to protect the host computer from ground loops and destructive voltage spikes on the RS-422/485 data lines. EX-9510 also offers internal surge-protection on the data lines. Internal high-speed transient suppressors on each data line protect the module from dangerous voltages levels or spikes.



#### Features

- Automatic internal RS-422/485 bus supervision
- No external flow control signals required for RS-485
- Minimum 3000VDC isolation protection
- Transient suppression on RS-485 data lines
- Supported baud rate up to 115.2Kbps
- Reach distance up to 4000 feet (1200m)
- Reserved space for termination resistors (R8,R9)
- Power and data flow indicator for troubleshooting
- Power requirement: +10V to +30VDC
- Mounts easily on DIN-rail or panel

#### Block Diagram:



# EX9000 Series

## RS232 to RS422/485 Converter

### EX9520/A/R/AR

#### Key Specifications/Special Features:

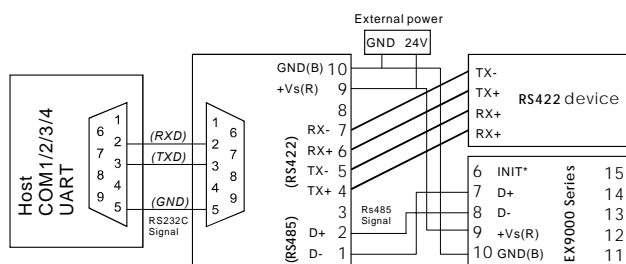
- Input: RS-232 protocol
- Speed: "AutoPro" designed auto switch baud rate, 300~115200Bps
- 256 modules max. in one RS-485 network without repeater
- 3000V isolation
- Multiple baud rate; multiple data format
- Communication distance:
  - 2.1km/9600Bps
  - 2.7km/4800Bps
  - 3.6km/2400Bps
  - Power requirements: +10V-30VDC
  - Power consumption 2.2W(max.)
  - Dimensions: 7 x 10 x 2cm
  - Series products: RS422/RS485/RS232; digital I/O AD/DA module
  - Operation Temp: -25°C to +75°C
  - Storage Temp: -40°C to +80°C



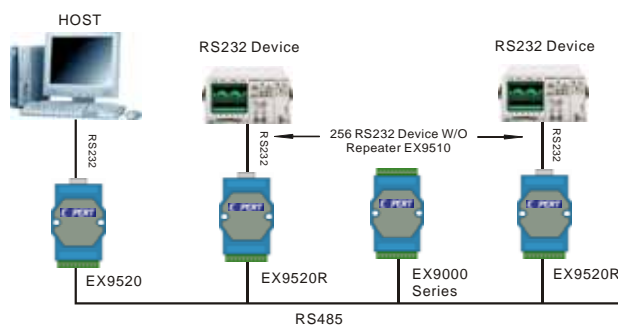
#### Serial products:

	422	485	Isolate	Repeater
EX9520		✓	232	
EX9520R		✓	485	
EX9520A	✓	✓	232	
EX9520AR	✓	✓	422/485	
EX9510		✓	485	✓
EX9510A	✓	✓	422/485	✓

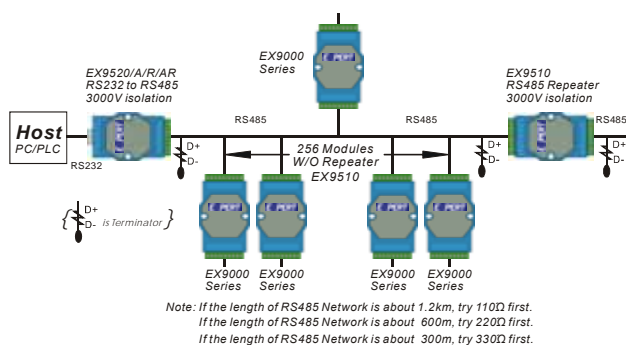
#### Ref. Of Connection I:



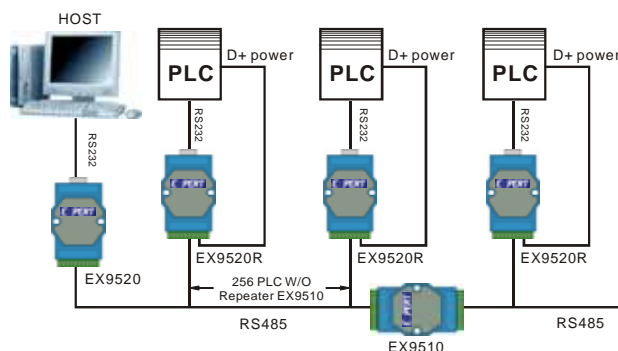
#### RS232 Devices Network:



#### Ref. Of Connection II:



#### PLC Network:



# EX9000 Series

## USB to RS232/422/485 Module

### EX9530

The EX-9530 convert is an intelligent, stackable expansion module that connects to a PC USB port or USB Hub via the Universal Serial Bus(USB) port, providing one High-Speed RS-232/RS-422 or RS-485 serial port(jumperless)

The EX-9530 features easy connectivity for traditional serial devices.

The RS-232 standard supports full-duplex communication and handshaking signals (such as RTS, CTS) and The RS-485 control is completely transparent to the user and software written for half-duplex COM works without any modification.

The EX-9530's Opto-isolators provide 3000 Vdc of isolation to protect the host computer from ground loops and destructive voltage spikes on the RS-232/RS-422 and RS-485 data lines.

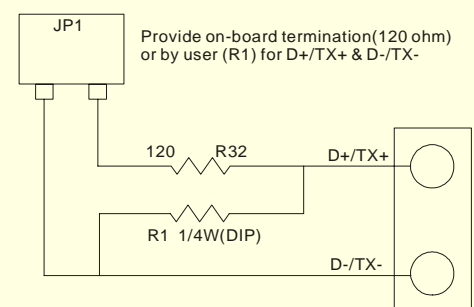
EX-9530 also offer internal surge-protection on their data lines. Internal high-speed transient suppressors on each data line protect the modules from dangerous voltages levels or spikes.

The EX-9530 module derives the power from USB port and doesn't need any power adapter.



### Features

- USB Specification 1.1 Compliant
- Auto direction flow control on RS-485
- Full-Duplex RS-232/RS-422 support
- RS-232 support RTS & CTS handshake signals
- Minimum 3000 VDC isolation protection
- Transient suppression on RS-485 data lines
- Auto switching for USB to RS-232/RS-422 or RS-485
- Auto Switching Baud Rate up to 115.2 Kbps
- Reserved space for termination resistors R1(TX/DATA), R2(RX)
- Power and data flow indicator for troubleshooting
- Driver support for Windows 95/98/ME/2000/XP, Linux
- Power requirement: Self Power



Termination Resistor "R1" for D+/TX+ & D-/TX-

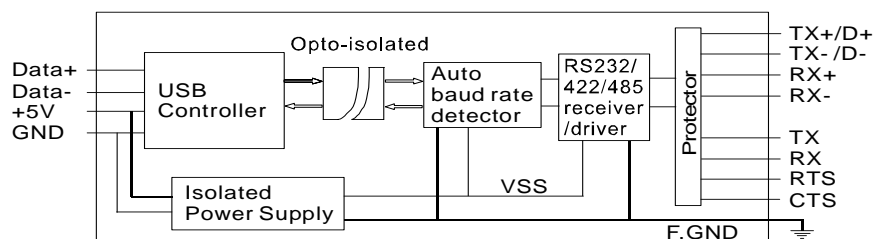
Termination Resistor "R2" for RX+ & RX-

If the length of RS-485 is about 1.2KM, try 120 ohm first.

If the length of RS-485 is about 600M, try 220 ohm first.

If the length of RS-485 is about 300M, try 330 ohm first.

### Block diagram:





# EX9000 Series

## USB to RS422/485 Module

### EX9531

The EX-9531 convert is an intelligent, stackable expansion module that connects to a PC USB port or USB Hub via the Universal Serial Bus(USB) port, providing one High-Speed RS-422 or RS-485 serial port(jumperless) The EX-9531 features easy connectivity for traditional serial devices.

The RS-232 standard supports full-duplex communication and handshaking signals (such as RTS, CTS) and The RS-485 control is completely transparent to the user and software written for half-duplex COM works without any modification.

The EX-9531's Opto-isolators provide 3000 Vdc of isolation to protect the host computer from ground loops and destructive voltage spikes on the RS-422/485 data lines.

EX-9531 also offer internal surge-protection on their data lines. Internal high-speed transient suppressors on each data line protect the modules from dangerous voltages levels or spikes.

The EX-9531 module derives the power from USB port and doesn't need any power adapter



### Features

USB Controller: Compatibility USB Specification 1.1 Standard

USB interface connector: USB type B

Isolation Side: RS-422/485

Converted signals: RS-422 or RS-485 Auto switching

Handshake: RS422 support RTS & CTS handshake signals

Auto Switching Baud rate (bps):300 ~115.2 K BPS

Transmission and Receiving LED indicator

Isolation voltage: 3000 V DC

RS-422/RS-485 connector: plug-in screw terminal

Accessories (Supplied):NYLON DIN-rail Mounting Adapter SECC

Panel Mounting Bracket

Plug-in screw terminal wiring: Accepts AWG 1-#12 to #22 (0.5 to 2.5 mm) wires

Power requirement: USB bus power

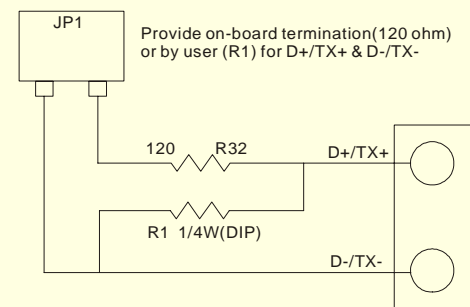
Case: ABS with captive mounting hardware

Power consumption: 0.65 W

Operating temperature:0 ~ 70 °C (32 ~ 158 °F)

Storage temperature:-25 ~ 85 °C (13 ~ 185 °F)

Humidity: 5 ~ 95%, non-condensing



Termination Resistor "R1" for D+/TX+ & D-/TX-

Termination Resistor "R2" for RX+ & RX-

Termination Resistor "R3" for CTS+/CTS-

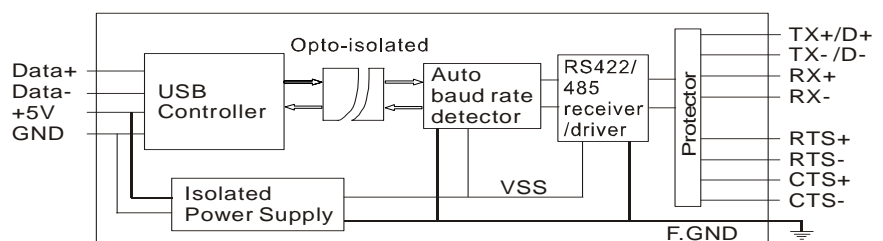
Termination Resistor "R4" for RTS+/RTS-

If the length of RS-485 is about 1.2KM, try 120 ohm first.

If the length of RS-485 is about 600M, try 220 ohm first.

If the length of RS-485 is about 300M, try 330 ohm first.

### Block diagram:



### TCP/IP & RS422/485 Network

#### **EX9000/EX9000-Modbus Series:**

RS422/485 Converter

Repeater

A/D, D/A, D I/O

#### **EX9188XD Series:**

AD, A5D, A8D, Modbus/RTU

EX952N: EX9521D/22D/23D

#### **EX9188END Series:**

E1D, E2D, E3D, E4D, E5D, E8D,

Modbus/TCP/IP

#### **Micro PLC W/Expansion board:**

4M/8M/16M/32M/ Nand Flash

256K/512K W/Battery

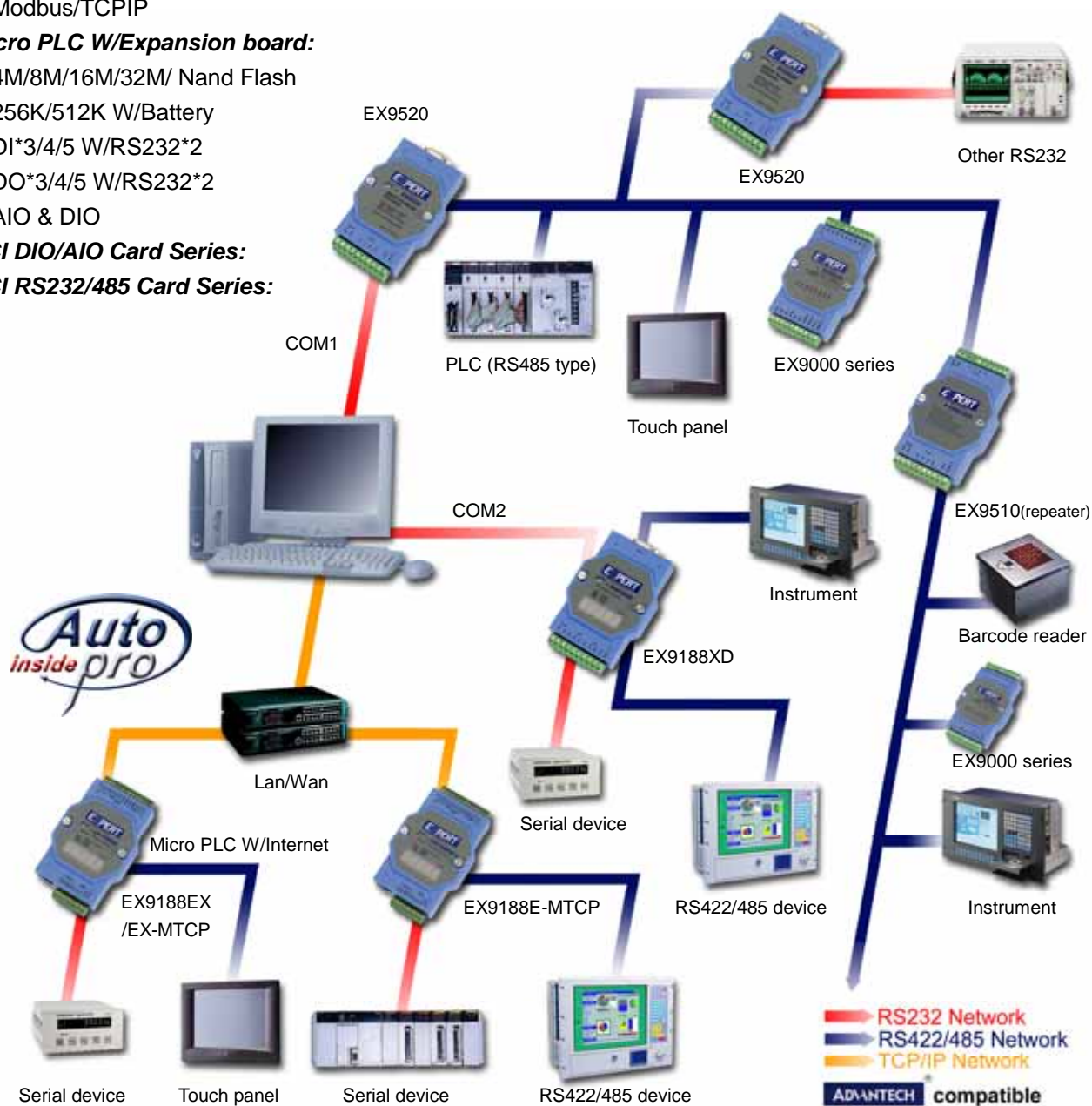
DI\*3/4/5 W/RS232\*2

DO\*3/4/5 W/RS232\*2

AIO & DIO

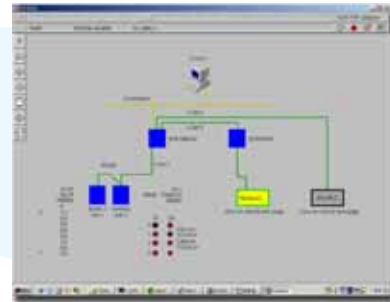
#### **PCI DIO/AIO Card Series:**

#### **PCI RS232/485 Card Series:**



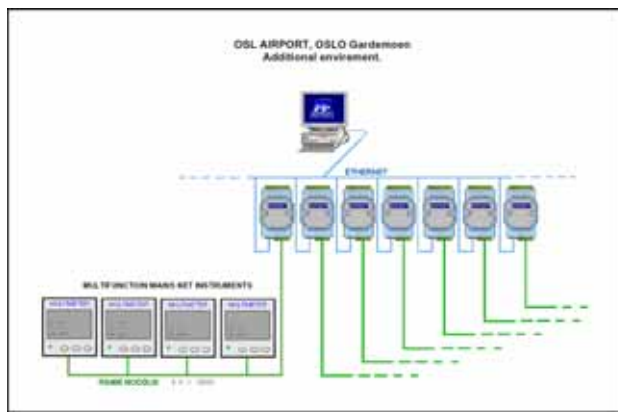
### TCP/IP & RS422/485 Network

**001: Application for EX9520AR; EX9017F; EX9060D of EX9000 Series & Modbus & Koyo PLC under Citect of SCADA system**



**002: Application for EX9188E4D; EX9520AR; EX9510; Siemens; CVM-BD RED under Citect of SCADA system**

**003: Application for EX9188E4D; EX9017F; PLC(Koyo); Modbus Converter under Citect SCADA system**



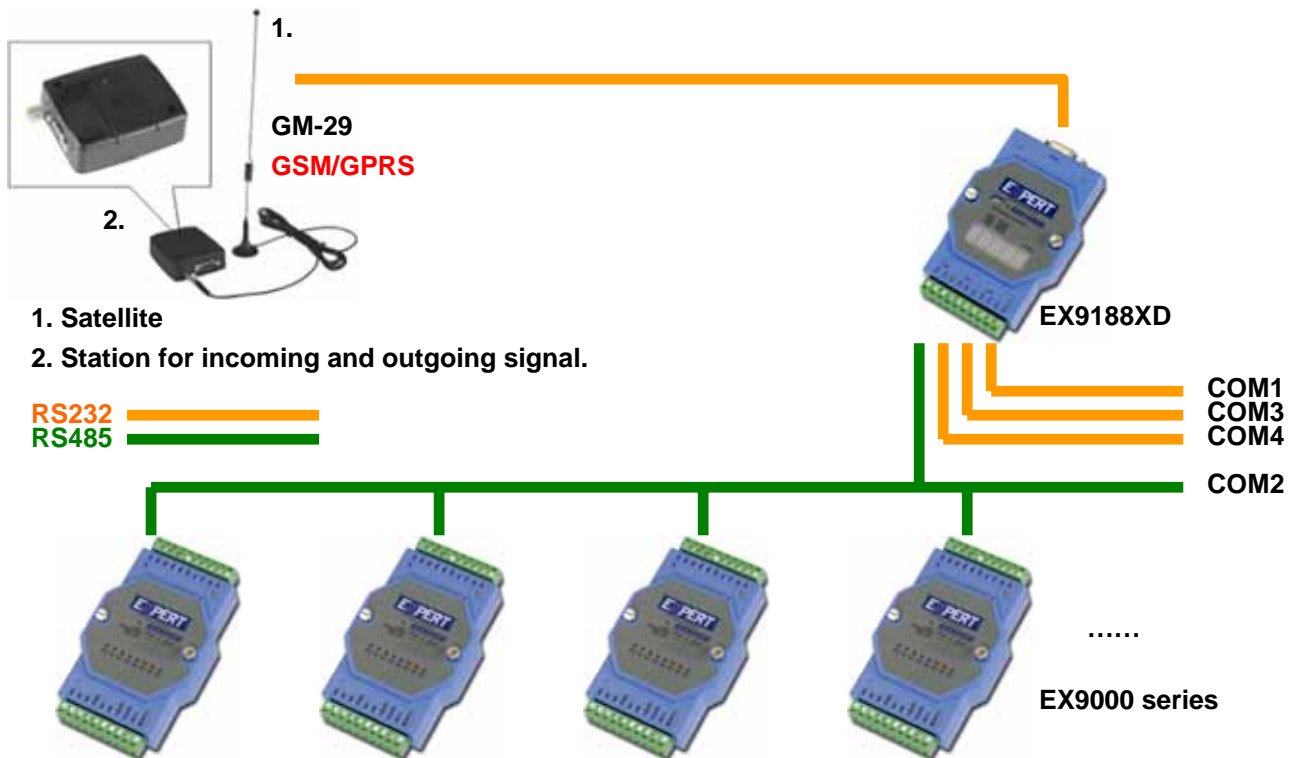
**004: Application(OSL Airport) for EX9188END & Modbus under Citect of SCADA system**

**005: Application for Solar & Pollution control by EX9188AD & EX9060D & EX9017F & EX9044D**

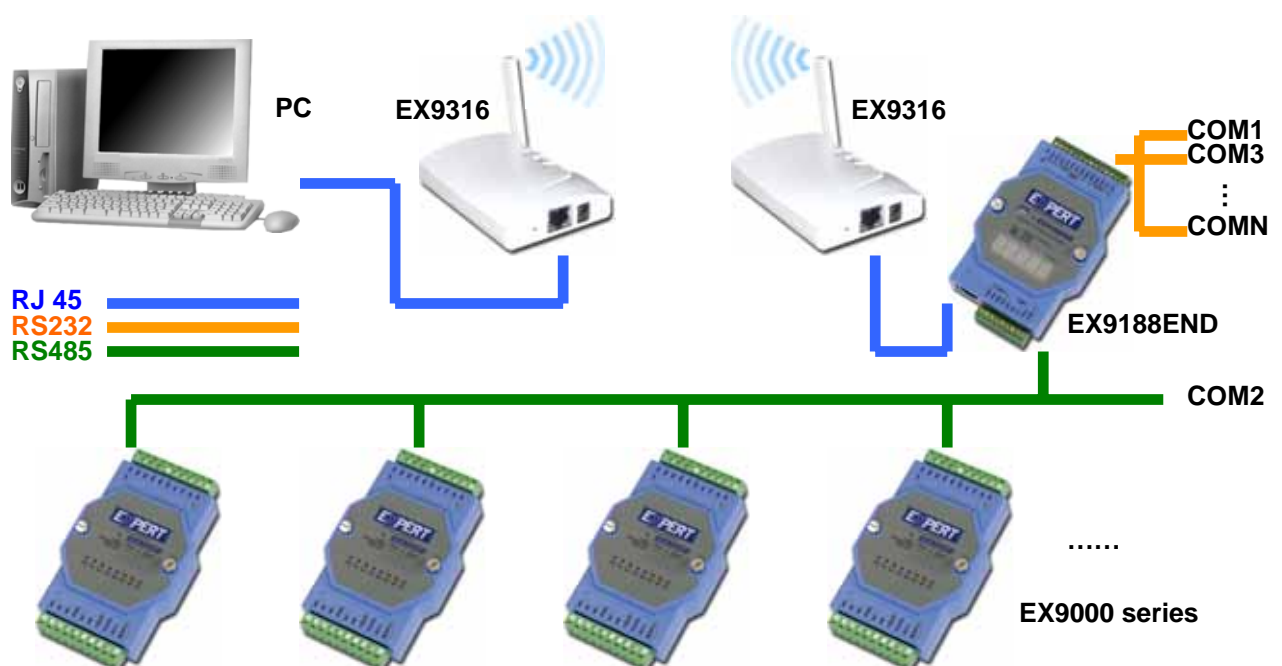


## TCP/IP & RS422/485 Network

### Application of GSM/GPRS with GM29 & EX9188XD and EX9000 Series

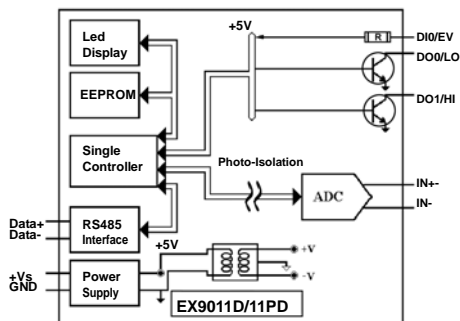


### Application of Wireless Lan with EX9316 & EX9188END and EX9000 Series





### EX9011PD



Resolution: 16bit

**Analog I/P channel: 1 diff**

Sampling rate: 10Hz

Voltage I/P: +/-15mV, +/-50mV, +/-100mV, +/-500mV, +/-1V, +/-2.5V

Current I/P: +/-20mA

Sensor I/P: J, K, T, E, R, S, B, N, C, L, M

4.5 digit LED

Isolation: 3000V

**Digital I/P Channels: 1 diff**

**Digital O/P Channels: 2 open collector**

Event Counter

H/L Alarm

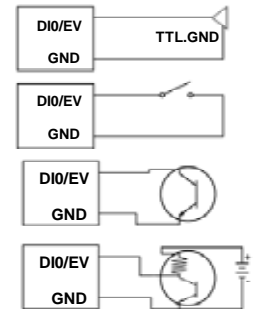
Dual Watchdog Timer

Power I/P: +10V to +30V

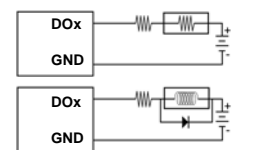
Power Consumption: 1.5W

Operating Temp: -25~75

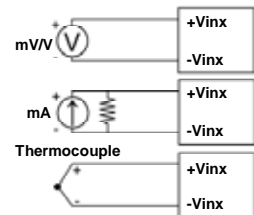
D/I Wire Connection:



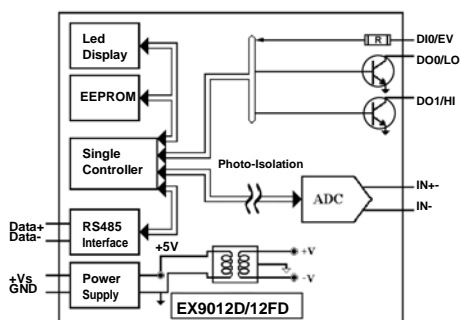
D/O Wire Connection:



A/D Wire Connection:



### EX9012D/12FD



Resolution: 12bit/16bit(9012FD)

**Analog I/P channel: 1 diff**

Sampling rate: 10Hz/100Hz

Voltage I/P: +/-150mV, +/-500mV, +/-1V, +/-5V, +/-10V

Current I/P: +/-20mA

4.5 digit LED

Isolation: 3000V

**Digital I/P Channels: 1 diff**

**Digital O/P Channels: 2 open collector**

Event Counter

H/L Alarm

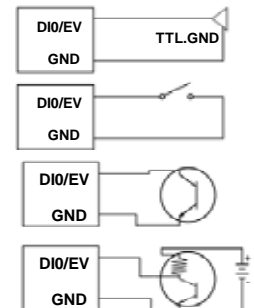
Dual Watchdog Timer

Power I/P: +10V to +30V

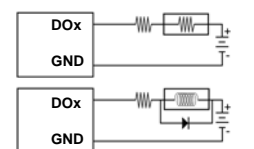
Power Consumption: 1.9W

Operating Temp: -25~75

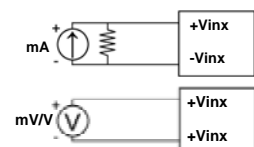
D/I Wire Connection:



D/O Wire Connection:

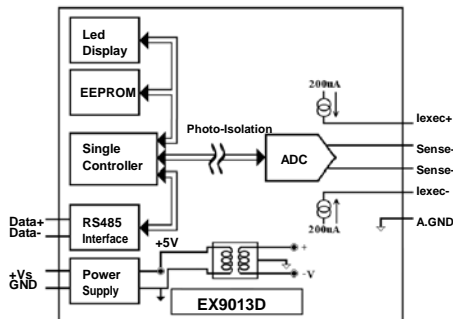


A/D Wire Connection:





### EX9013D



Resolution: 16bit

**Analog I/P channel: 1 diff**

Sampling rate: 15Hz

Sensor I/P: RTD(Pt, Ni)

4.5 digit LED

Isolation: 3000V

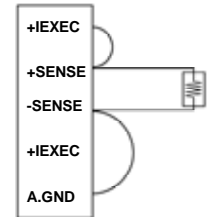
Dual Watchdog Timer

Power I/P: +10V to +30V

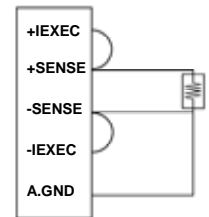
Power Consumption: 2.2W

Operating Temp: -25~75

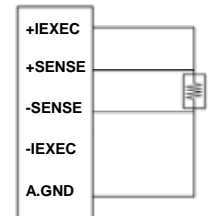
2-wire RTD connection



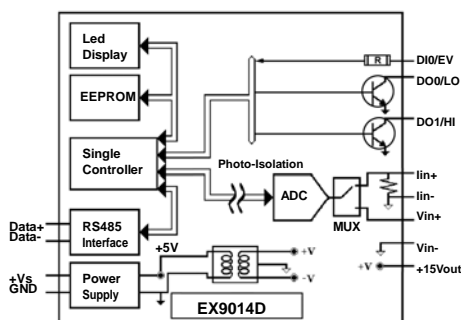
3-wire RTD connection



4-wire RTD connection



### EX9014D



Resolution: 16bit

**Analog I/P channel: 1 diff**

Sampling rate: 10Hz

Voltage I/P: +/-150mV, +/-500mV, +/-1V, +/-5V, +/-10V

Current I/P: +/-20mA

4.5 digit LED

Isolated loop power: 15V

I/P Linear Scaling

Isolation: 3000V

**Digital I/P Channels: 1 diff**

**Digital O/P Channels: 2 open collector**

Event Counter

H/L Alarm

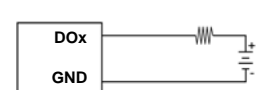
Dual Watchdog Timer

Power I/P: +10V to +30V

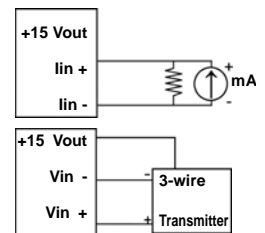
Power Consumption: 1.9W

Operating Temp: -25~75

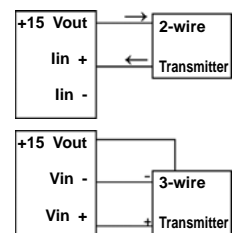
D/O Wire connection



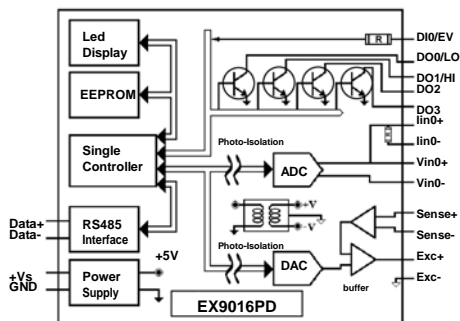
A/D wire connection



Transmitter A/D



### EX9016D



Resolution: 16bit

**Analog I/P channel: 1 diff**

Sampling rate: 10Hz

Voltage I/P:  $\pm 15\text{mV}$ ,  $\pm 50\text{mV}$ ,  
 $\pm 100\text{mV}$ ,  $\pm 500\text{mV}$ ,  $\pm 1\text{V}$ ,  $\pm 2.5\text{V}$

Current I/P:  $\pm 20\text{mA}$

Sensor I/P: 6 wire

4.5 digit LED

I/P Liner Scaling

Isolation: 3000V

**Digital I/P Channels: 1 diff**

**Digital O/P Channels: 4 open collector**

Event Counter

H/L Alarm

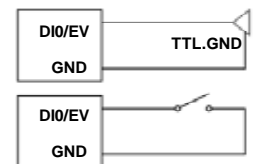
Dual Watchdog Timer

Power I/P:  $+10\text{V}$  to  $+30\text{V}$

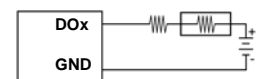
Power Consumption: 1W

Operating Temp:  $-25\sim 75$

D/I Wire Connection:



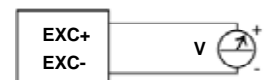
D/O Wire Connection



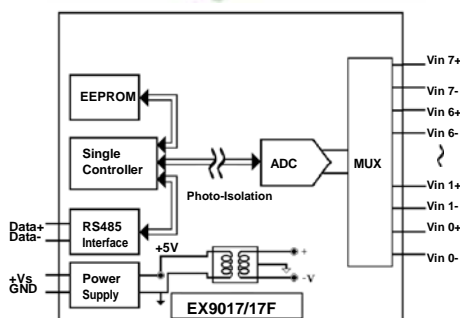
A/D Wire Connection:



D/A Wire Connection:



### EX9017/17F



Resolution: 16bit/**12bit(9017F)**

**Analog I/P channel: 8 diff**

Sampling rate: 10Hz/**75Hz(9017F)**

Voltage I/P:  $\pm 150\text{mV}$ ,  $\pm 500\text{mV}$ ,  $\pm 1\text{V}$ ,  
 $\pm 5\text{V}$ ,  $\pm 10\text{V}$

Current I/P:  $\pm 20\text{mA}$

Isolation: 3000V

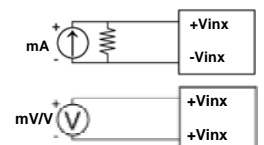
Dual Watchdog Timer

Power I/P:  $+10\text{V}$  to  $+30\text{V}$

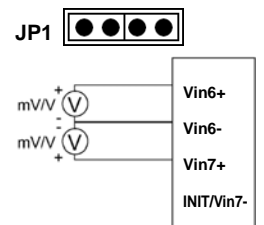
Power Consumption: 1.3W

Operating Temp:  $-25\sim 75$

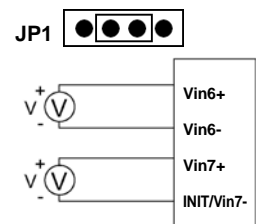
A/D Wire Connection:



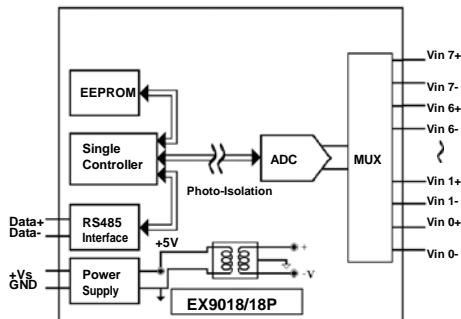
Init\* mode connection:



Differential mode Connection:



### EX9018/9018BL



Resolution: 16bit

**Analog I/P channel: 8 diff**

Sampling rate: 10Hz

Voltage I/P: +/-15mV, +/-50mV,  
+/-100mV, +/-500mV, +/-1V, +/-2.5V

Current I/P: +/-20mA

Sensor I/P: J, K, T, E, R, S, B, N, C

Isolation: 3000V

Dual Watchdog Timer

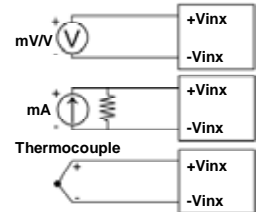
Power I/P: +10V to +30V

Power Consumption: 1W

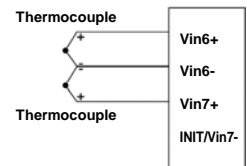
Operating Temp: -25~75

Thermal couple break line detection (9018BL)

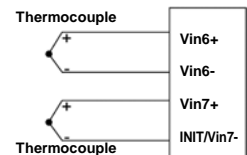
A/D Wire Connection:



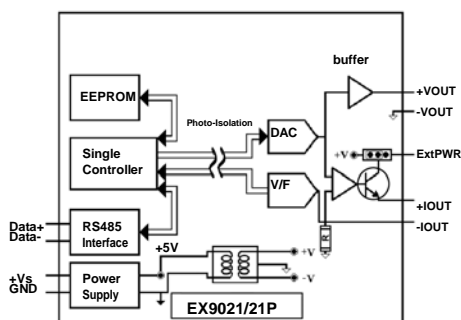
Init\* mode connection:



Differential mode Connection:



### EX9021



Resolution: 12bit

**Analog O/P Channel: 1**

Voltage O/P: 0~10V

Current O/P: 0~20mA, 4~20mA

Safe Value (When host fail / Comm fail)

Power-on Value

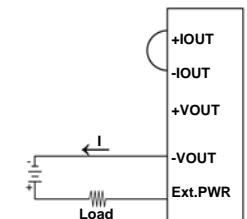
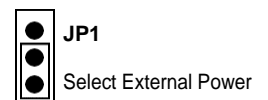
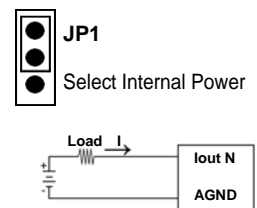
Dual Watchdog Timer

Power I/P: +10V to +30V

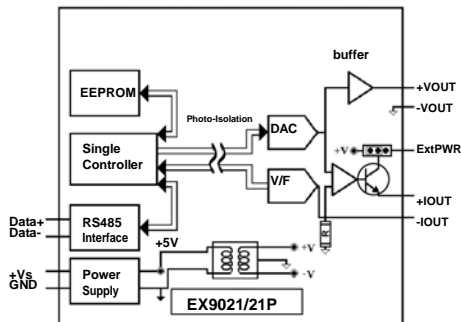
Power Consumption: 2W

Operating Temp: -25~75

Current D/A Wire Connection:



### EX9021P



Resolution: **16bit**

Analog O/P Channel: **1**

Voltage O/P: 0~10V

Current O/P: 0~20mA, 4~20mA

Safe Value (When host fail / Comm fail)

Power-on Value

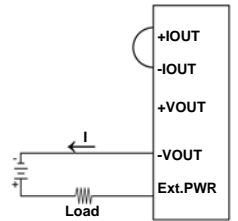
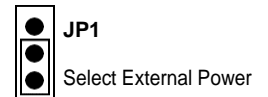
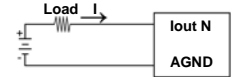
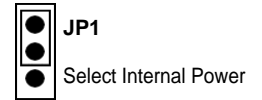
Dual Watchdog Timer

Power I/P: +10V to +30V

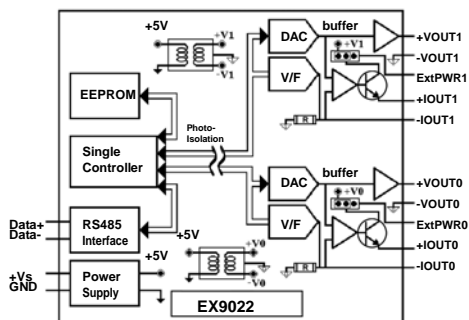
Power Consumption: 2W

Operating Temp: -25~75

Current D/A Wire Connection:



### EX9022



Resolution: 12bit

Analog O/P Channel: **2**

Voltage O/P: 0~10V

Current O/P: 0~20mA, 4~20mA

Safe Value (When host fail / Comm fail)

Power-on Value

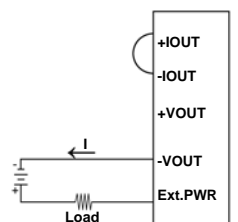
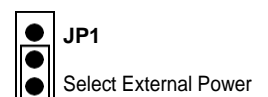
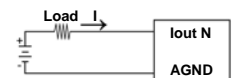
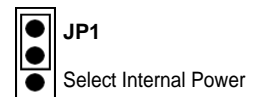
Dual Watchdog Timer

Power I/P: +10V to +30V

Power Consumption: 2W

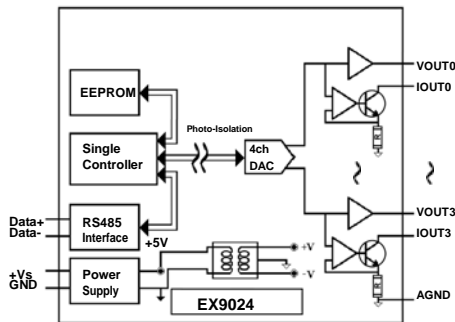
Operating Temp: -25~75

Current D/A Wire Connection:





### EX9024



Resolution: 12bit

#### Analog O/P Channel: 4

Voltage O/P:  $\pm 10V$ ,  $0 \sim 10V$ ,  $\pm 5V$ ,  $0 \sim 5V$

Current O/P:  $0 \sim 20mA$ ,  $4 \sim 20mA$

Safe Value (When host fail / Comm fail)

Power-on Value

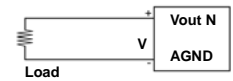
Dual Watchdog Timer

Power I/P:  $+10V$  to  $+30V$

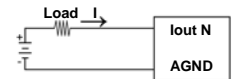
Power Consumption: 2W

Operating Temp:  $-25 \sim 75$

Voltage D/A Wire Connection:

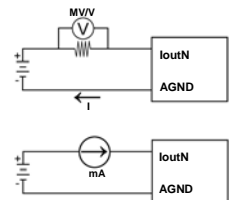


Current D/A Wire Connection:

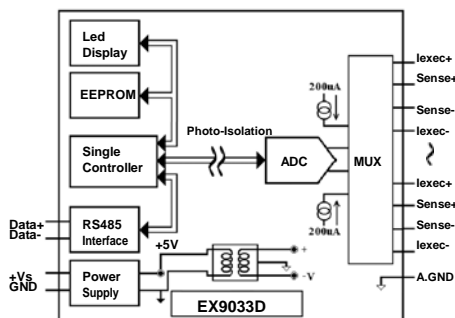


Current D/A Calibration sequence:

1. Connect meter and external power sources to module's current output channel 0
2. Setting type to 30. (0 to 20mA)
3. Output 0mA.
4. Check the meter and trim the output until 0mA match by apply trim command
5. Perform 0mA Calibration Command.
6. Output 20mA
7. Check the meter and trim the output until 20mA match by apply trim command.
8. Perform 20mA Calibration Command.
9. Repeat 1 to 8 for channel 1,2 and 3.



### EX9033D



Resolution: 16bit

#### Analog I/P channel: 3 diff

Sampling rate: 15Hz

Sensor I/P: RTD(Pt, Ni)

4.5 digit LED

Isolation: 3000V

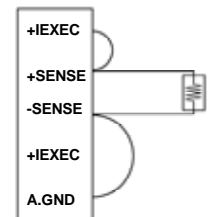
Dual Watchdog Timer

Power I/P:  $+10V$  to  $+30V$

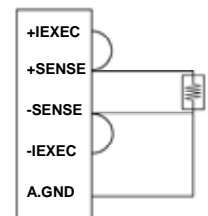
Power Consumption: 2.5W

Operating Temp:  $-25 \sim 75$

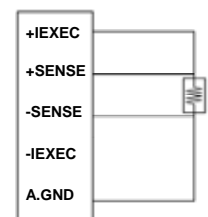
2-wire RTD connection



3-wire RTD connection

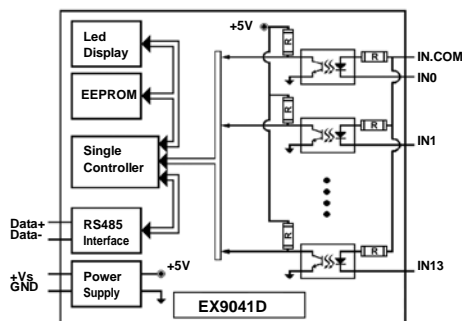


4-wire RTD connection





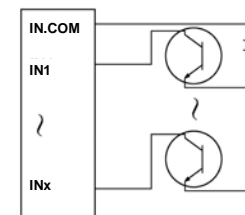
### EX9041D



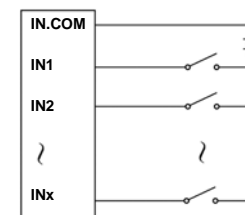
#### Digital I/P channel: 14 Single-ended

Isolation: Isolation with common sources  
 Isolation Voltage: 3750Vrms  
 Digital Level 0: +1V max  
 Digital Level 1: +4V to +30V  
 Input Impedance: 3K Ohms  
 Dual Watchdog Timer  
 Power Input: +10V to 30VDC  
 Power Consumption: 0.9W  
 Operating Temp: -25~75

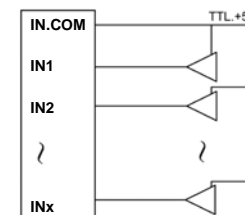
#### Open Collector signal D/I



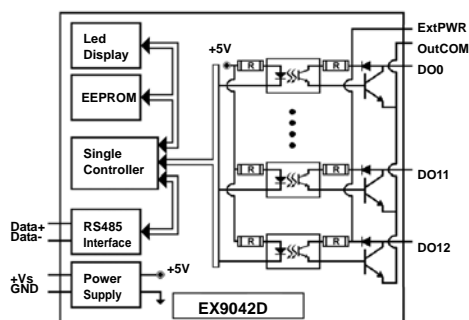
#### Dry Contact signal D/I



#### TTL/CMOS signal D/I



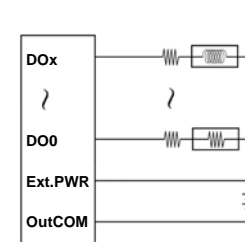
### EX9042D



#### Digital O/P Channel: 13 open collector

Isolation: Isolation with common power  
 Isolation Voltage: 3750Vrms  
 Load Voltage: Max to +30V  
 Max Load current: 100mA  
 Dual Watchdog Timer  
 Power Input: +10V to 30VDC  
 Power Consumption: 1.7W  
 Operating Temp: -25~75

#### D/O Wire Connection:



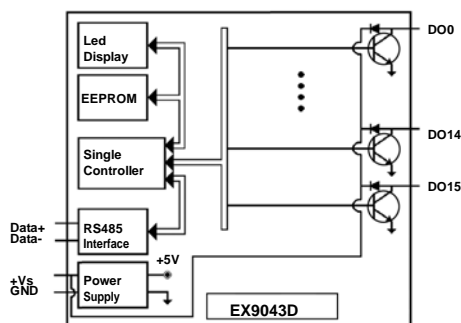
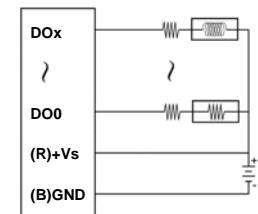
### EX9043D



#### Digital O/P Channel: 16 open collector

Load Voltage: Max to +30V  
 Max Load current: 100mA  
 Dual Watchdog Timer  
 Power Input: +10V to 30VDC  
 Power Consumption: 1.1W  
 Operating Temp: -25~75

#### D/O Wire Connection:



### EX9044D



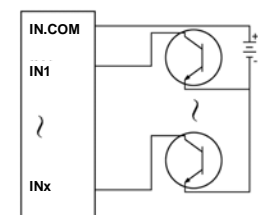
#### Digital O/P Channel: 8 open collector

Isolation: Isolation with common power  
 Isolation Voltage: 3750Vrms  
 Load Voltage: Max to +30V  
 Max Load current: 375mA

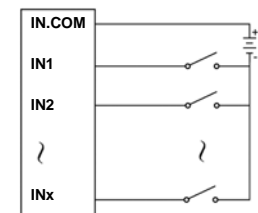
#### Digital I/P Channel: 4 Single-ended

Isolation: Isolation with common Sources  
 Isolation Voltage: 3750Vrms  
 Digital Level 0: 1V Max  
 Digital Level 1: 4V to 30V  
 Input Impedance: 3K Ohms  
 Dual Watchdog Timer  
 Power Input: +10V to 30VDC  
 Power Consumption: 1.7W  
 Operating Temp: -25~75

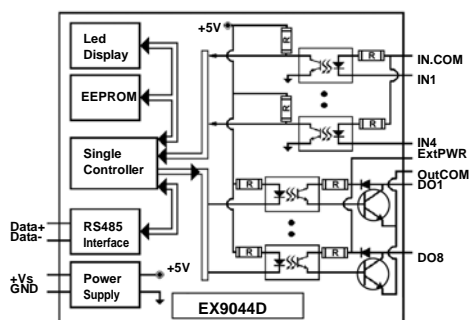
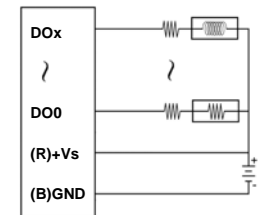
#### Open Collector signal D/I



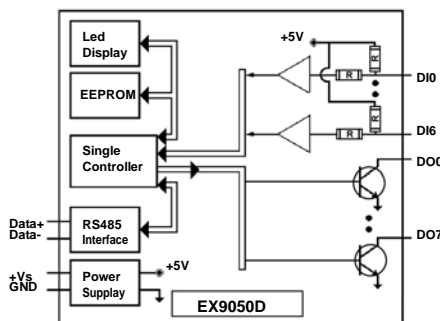
#### Dry Contact signal D/I



#### D/O Wire Connection:



### EX9050D



#### Digital O/P Channel: 8 open collector

Load Voltage: Max to +30V

Max Load current: 30mA

#### Digital I/P Channel: 7 Single-ended

Digital Level 0: 1V Max

Digital Level 1: 4V to 30V

Input Impedance: 3K Ohms

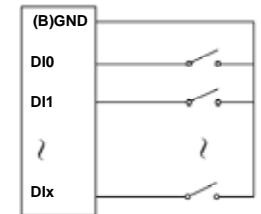
Dual Watchdog Timer

Power Input: +10V to 30VDC

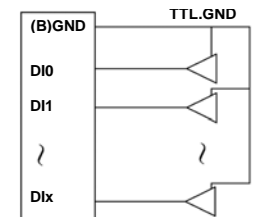
Power Consumption: 1.7W

Operating Temp: -25~75

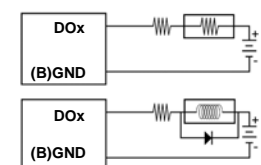
#### Dry Contact signal D/I



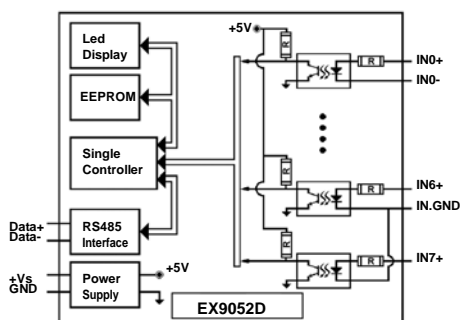
#### TTL/CMOS signal D/I



#### D/O Wire Connection:



### EX9052D



#### Digital I/P Channel: 8

Isolation: 6 diff & 2 common ground

Isolation Voltage: 5000Vrms

Digital Level 0: 1V Max

Digital Level 1: 4V to 30V

Input Impedance: 3K Ohms

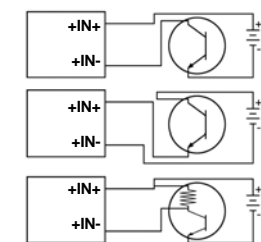
Dual Watchdog Timer

Power Input: +10V to 30VDC

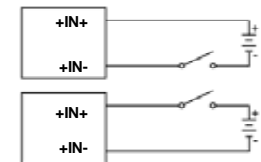
Power Consumption: 0.6W

Operating Temp: -25~75

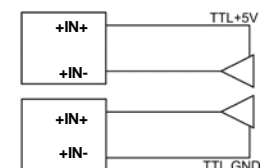
#### Open Collector signal D/I



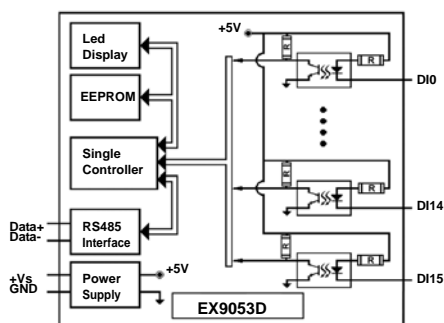
#### Dry Contact signal D/I



#### TTL/CMOS signal D/I



### EX9053D



#### Digital I/P Channel: 16

Digital Level 0: 2V Max

Digital Level 1: 4V to 30V

Input Impedance: 820 Ohms

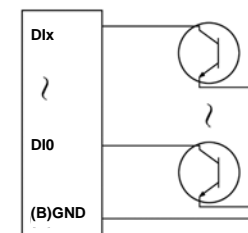
Dual Watchdog Timer

Power Input: +10V to 30VDC Power

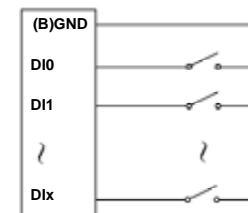
Consumption: 0.9W

Operating Temp: -25~75

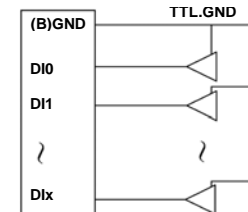
#### Open Collector signal D/I



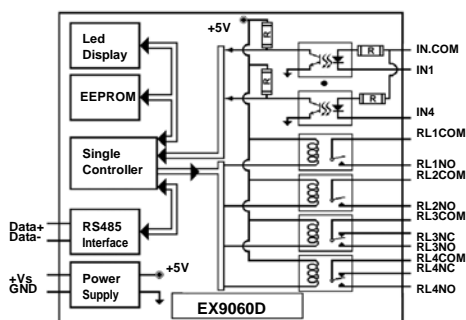
#### Dry Contact signal D/I



#### TTL/CMOS signal D/I



### EX9060D



#### Digital O/P Channel: 4

Relay type: Form A: RL1, RL2

Form B: RL3, RL4

Surge Strength: 500V

Operate Time: 3mS

Release Time: 2mS

Min. Life:  $5 \times 10^5$  ops

#### Digital I/P Channel: 4

Isolation: Isolation with common Sources

Isolation Voltage: 3750Vrms

Digital Level 0: 1V Max

Digital Level 1: 4V to 30V

Input Impedance: 3K Ohms

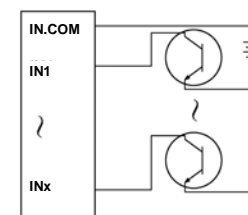
Dual Watchdog Timer

Power Input: +10V to 30VDC

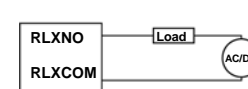
Power Consumption: 1.9W

Operating Temp: -25~75

#### Open Collector signal D/I

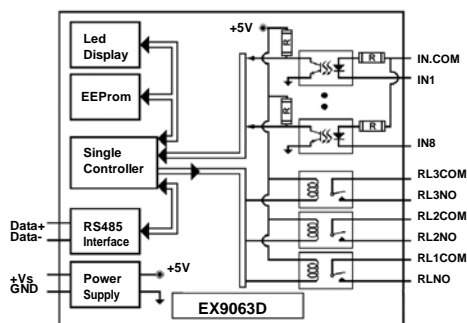


#### Relay O/P on:





### EX9063D/AD/BD



#### Digital O/P Channel: 3

Relay type: **9063D** 5A@250VAC/30VDC

**9063AD** AC-SSR Normal Open

**9063BD** DC-SSR Normal Open

#### Digital I/P Channel: 8

Isolation: Isolation with common Sources

Isolation Voltage: 3750Vrms

Digital Level 0: 1V Max

Digital Level 1: 4V to 30V

Input Impedance: 3K Ohms

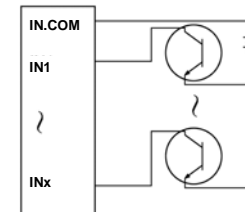
Dual Watchdog Timer

Power Input: +10V to 30VDC

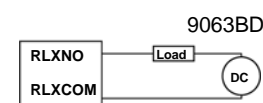
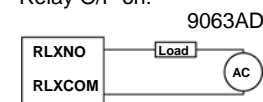
Power Consumption: 1.5W

Operating Temp: -25~75

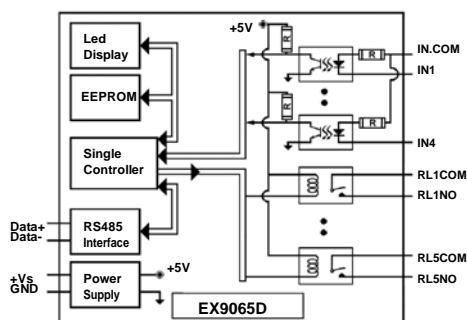
Open Collector signal D/I



Relay O/P on:



### EX9065D/AD/BD



#### Digital O/P Channel: 5

Relay type: **9065D** 5A@250VAC/30VDC

**9065AD** AC-SSR Normal Open

**9065BD** DC-SSR Normal Open

#### Digital I/P Channel: 4

Isolation: Isolation with common Sources

Isolation Voltage: 3750Vrms

Digital Level 0: 1V Max

Digital Level 1: 4V to 30V

Input Impedance: 3K Ohms

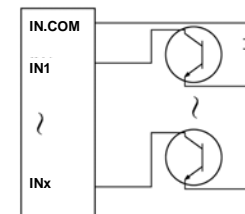
Dual Watchdog Timer

Power Input: +10V to 30VDC

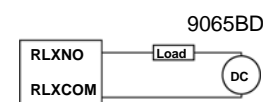
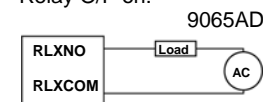
Power Consumption: 1.5W

Operating Temp: -25~75

Open Collector signal D/I

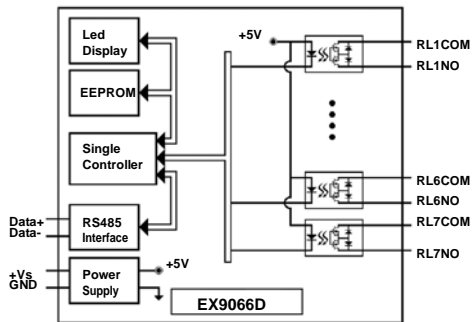


Relay O/P on:





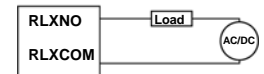
### EX9066D



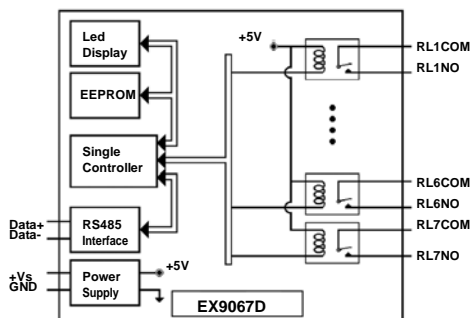
#### Digital O/P Channel: 7 (PhotoMOS)

Load Current: 0.13A  
 Load Voltage: 350V Max  
 Isolation Voltage: 350V Max  
 TurnOn Time: 0.7mS typ  
 TurnOff Time: 0.05mS typ  
 Power Input: +10V to +30VDC  
 Dual Watchdog Timer  
 Power Input: +10V to 30VDC  
 Power Consumption: 1.9W  
 Operating Temp: -25~75

Relay O/P on:



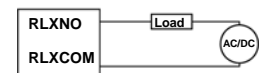
### EX9067D



#### Digital O/P Channel: 7

Relay type: Form A  
 Contact Rating: 0.5A@120AC, 1A@24VDC  
 Surge Strength: 1500V  
 Operate Time: 5mS Max  
 Release Time: 2mS Max  
 Min. Life: 10<sup>5</sup>ops  
 Dual Watchdog Timer  
 Power Input: +10V to 30VDC  
 Power Consumption: 1.9W  
 Operating Temp: -25~75

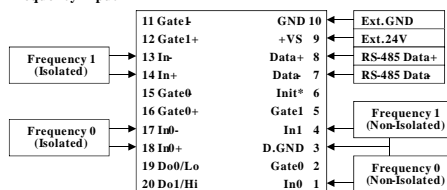
Relay O/P on:



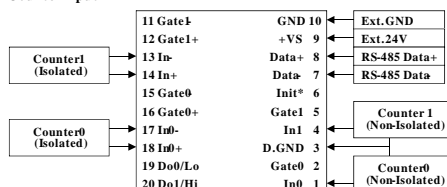
### EX9080D/RD



Frequency Input



CounterInput



#### Digital O/P Channel: 2 Open collector

Load Voltage: Max to +30V

Max Load current: 30mA

Power dissipation: 300mW

#### Digital I/P Channel: 2

**Counter input:** non-Isolated or Isolated programmable

Isolation Input levels: Logic level 0: +1V max

Logic level 1: +3.5V to +30V

Isolation Voltage: 3750Vrms

Non-Isolation input threshold level: programmable (for 9080D only)

Logic level 0: 0 to +5V (default: 0.8V)

Logic level 1: 0 to +5V (default: 2.4V)

Maximum count: 32 bit (4,294,967,295)

Programmable digital noise filter: 2 us to 95 ms

Alarming: alarm on counter 0 or counter 0 & 1, programmable

Counter preset value: programmable

#### Frequency Measurement:

Input frequency: 1 Hz to 100K Hz max

Programmable build-in gate time: 1.0/0.1 sec

Programmable digital noise filter: 2 us to 65 ms (for 9080D only)

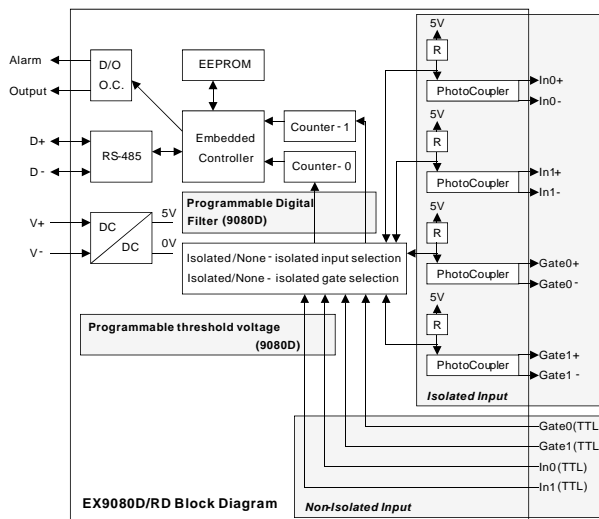
4.5 digit LED

Dual Watchdog Timer

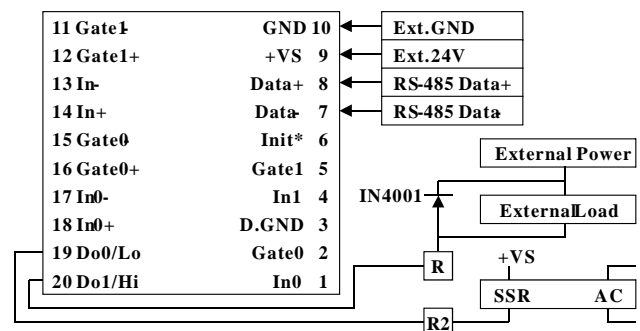
Power Input: +10V to 30VDC

Power Consumption: 2.2W

Operating Temp: -25~75



#### Output Drive SSR or Other Load



Note:

If the external load is resistive load, the 1N4001 ca be omitted (transistor, lamp, resistor....)

If the external load is inductive load, the 1N4001 ca be omitted (relay, coil....)

# EX9000-M Series

## Modbus Module

### EX9017-M



Resolution: 12bit  
**Analog I/P channel: 8 diff**  
Sampling rate: 75Hz  
Voltage I/P: +/-150mV, +/-500mV, +/-1V, +/-5V, +/-10V  
Current I/P: +/-20mA  
Isolation: 3000V

Dual Watchdog Timer  
Power I/P: +10V to +30V  
Power Consumption: 1.3W  
Operating Temp: -25~75  
Support Modbus protocol

### EX9024-M



Resolution: 12bit  
**Analog O/P Channel: 4**  
Voltage O/P: +/-10V, 0~10V, +/-5V, 0~5V  
Current O/P: 0~20mA, 4~20mA  
Safe Value (When host fail / Comm fail)  
Power-on Value

Dual Watchdog Timer  
Power I/P: +10V to +30V  
Power Consumption: 2W  
Operating Temp: -25~75  
Support Modbus protocol

### EX9043D-M



**Digital O/P Channel: 16 open collector**  
Load Voltage: Max to +30V  
Max Load current: 100mA

Dual Watchdog Timer  
Power I/P: +10V to +30V  
Power Consumption: 1.1W  
Operating Temp: -25~75  
Support Modbus protocol

### EX9053D-M



**Digital I/P Channel: 16**  
Digital Level 0: 2V Max  
Digital Level 1: 4V to 30V  
Input Impedance: 820 Ohms

Dual Watchdog Timer  
Power I/P: +10V to +30V  
Power Consumption: 0.9W  
Operating Temp: -25~75  
Support Modbus protocol

### EX9060-M



**Digital O/P Channel: 4**  
Relay type: Form A: RL1, RL2  
Form B: RL3, RL4  
Surge Strength: 500V  
Operate Time: 3mS  
Release Time: 2mS  
Min. Life: 5\*10<sup>5</sup>ops

**Digital I/P Channel: 4**  
Isolation: Isolation with common Sources  
Isolation Voltage: 3750Vrms  
Digital Level 0: 1V Max  
Digital Level 1: 4V to 30V  
Input Impedance: 3K Ohms

Power input: +10V to +30VDC  
Power Consumption: 1.9W  
Operating Temp: -25~75  
Support Modbus protocol

# EX9188 Series

Industrial embedded controller

## EX9188XD Series

### Key Specification/Special Features:

- EX9188XD Series : Support 4/5/8 RS232/RS485 devices
- COM4 Can be used to download program and can be RS232 port
- Watchdog support for system recovery
- CPU : 80188, 40MHZ
  - SRAM : 256KB
  - FLASH ROM : 512KB
  - EEPROM : 2KB
  - EMBEDDED OS : RomDos(Datalight)
  - Optional: 512KB SRAM, RTC**
- 3000V Isolation option
- Operating Temp: -25~75
- Power input: +10 to 30VDC (35/48VDC Available)
- Series : EX9188AD, EX9188AD-512, EX9188A5D, EX9188A5D-512, EX9188A8D, EX9188A8D-512

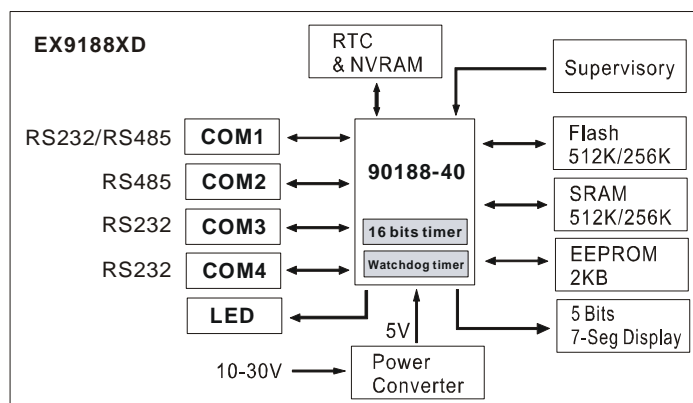


### Serial products:

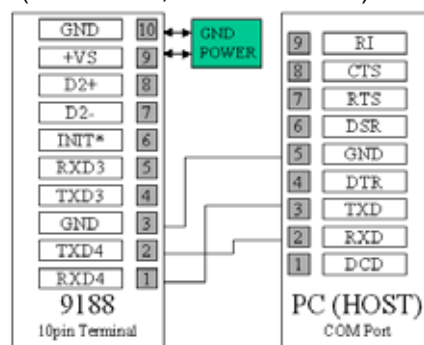
Model	EX9188AD	EX9188AD-512	EX9188A5D	EX9188A5D-512	EX9188A8D	EX9188A8D-512
Flash	512K	512K	512K	512K	512K	512K
SRAM	256K	512K	256K	512K	256K	512K
RTC	x	v	x	v	x	v
COM1	RS232/485 *1	RS232/485 *1	RS232(5wire) *2	RS232(5wire) *2	RS232(5wire) *2	RS232(5wire) *2
COM2	RS485	RS485	RS485	RS485	RS485	RS485
COM3	RS232(3wire)	RS232(3wire)	RS232(3wire)	RS232(3wire)	RS232(3wire)	RS232(3wire)
COM4	RS232(3wire) *2	RS232(3wire) *2	RS232(3wire)	RS232(3wire)	RS232(3wire)	RS232(3wire)
COM5	x	x	RS232(3wire)	RS232(3wire)	RS232(3wire)	RS232(3wire)
COM6	x	x	x	x	RS232(3wire)	RS232(3wire)
COM7	x	x	x	x	RS232(3wire)	RS232(3wire)
COM8	x	x	x	x	RS232(3wire)	RS232(3wire)

\*1: RS232 (5wire) / RS485 (2wire)

\*2: Use to Program download



Use COM4 for Debug System  
(EX9188XD, EX9188XD-512)



# EX9188 Series

Addressable RS-485 to RS-232 Converter

## EX952N Series

### Key Specification/Special Features:

- Built in "Addressable RS485 to RS232 Converter" firmware
- Watchdog timer provides fault tolerance and recovery
- CPU 80188, 40MHZ
  - SRAM 256KB
  - FLASH ROM 512KB
  - EEPROM 2KB
  - EMBEDDED OS RomDos(Datalight)
  - Communication speed: 115.2K bps max
  - Operating temperature: -25°C to +75°C
  - Storage temperature: -40°C to +80°C
  - Optional: 512KB SRAM, RTC**
- Operating Temp: -25~75
- Power input: +10 to 30VDC (35/48VDC Available)
- Series EX9521D, EX9522D, EX9523D, EX9524D, EX9527D



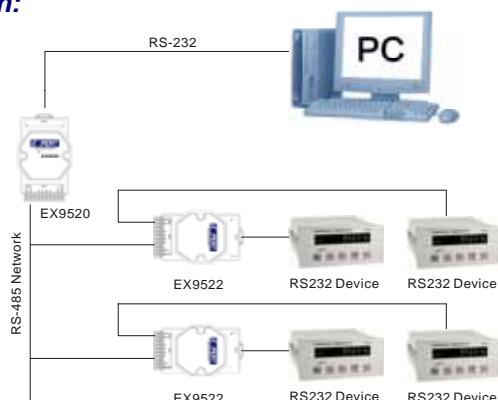
### Serial products:

Model No.	EX9521D	EX9522D	EX9523D	EX9524D	EX9527D
Flash	512	512	512	512	512
SRAM	256	256	256	512	512
RTC	x	x	x	v	v
COM1	x	x	RS232(3wire)	RS232(5wire) *1	RS232(5wire) *1
COM2	RS485	RS485	RS485	RS485	RS485
COM3	x	RS232(3wire)	RS232(3wire)	RS232(3wire)	RS232(3wire)
COM4	RS232(3wire) *2	RS232(3wire) *2	RS232(3wire) *2	RS232(3wire)	RS232(3wire)
COM5	x	x	x	RS232(3wire)	RS232(3wire)
COM6	x	x	x	x	RS232(3wire)
COM7	x	x	x	x	RS232(3wire)
COM8	x	x	x	x	RS232(3wire)

\*1: Program download from COM1(RS232 5Wire) for EX9524D/27D

\*2: Program download from COM4(RS232 3Wire) for EX9521D/22D/23D

### Application:





# EX9188E Series

Internet/Ethernet Communication Controller

## EX9188END Series

### Key Specification/Special Features:

- EX9188END Support 1/2/3/4/5/8 RS232/485 devices
- Ethernet port for TCP/IP features TCP, UDP, IP, ICMP, ARP, RARP
- COM1 Can be used to download program and can be RS232 port
- Dual Watchdog support for system recovery
- CPU 80188, 40MHZ
  - SRAM 256KB
  - FLASH ROM 512KB
  - EEPROM 2KB
  - EMBEDDED OS RomDos(Datalight)
  - **Optional: 512KB SRAM, RTC (EX9188END-512)**
- Operating Temp: -25~75
- Power input: +10 to 30VDC (35/48VDC Available)
- Series: EX9188E1D, EX9188E2D, EX9188E3D, EX9188E4D, EX9188E5D, EX9188E8D

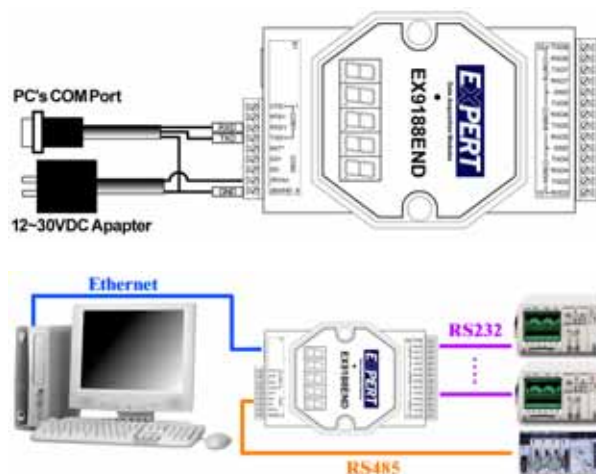
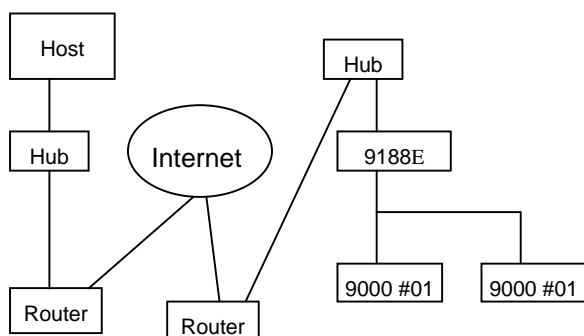


### Serial products:

Model No.	EX9188E1D	EX9188E2D	EX9188E3D	EX9188E4D	EX9188E5D	EX9188E8D
Ethernet port	10 BASE T	10 BASE T	10 BASE T	10 BASE T	10 BASE T	10 BASE T
COM1	RS232(5wire)	RS232(5wire)	RS232(5wire)	RS232(5wire)	RS232(5wire)	RS232(5wire)
COM2	x	RS485	RS485	RS485	RS485	RS485
COM3	x	x	RS232(3wire)	RS232(3wire)	RS232(3wire)	RS232(3wire)
COM4	x	x	x	RS232(3wire)	RS232(3wire)	RS232(3wire)
COM5	x	x	x	x	RS232(3wire)	RS232(3wire)
COM6	x	x	x	x	x	RS232(3wire)
COM7	x	x	x	x	x	RS232(3wire)
COM8	x	x	x	x	x	RS232(3wire)

Program download from COM1(RS232 3Wire)

### Simple Structure of EX9188E Network:



# EX9188E Series

Modbus/TCP Embedded Controller

## EX9188END-MTCP Series

### Key Specification/Special Features:

- EX9188END-MTCP Support 1/2/3/4/5/8 RS232/485 devices
- Ethernet port for TCP/IP features TCP, UDP, IP, ICMP, ARP, RARP
- COM1 Can be used to download program and can be RS232 port
- Dual Watchdog support for system recovery
- CPU 80188, 40MHZ
  - SRAM 256KB
  - FLASH ROM 512KB
  - EEPROM 2KB
  - EMBEDDED OS RomDos(Datalight)
  - Optional: 512KB SRAM, RTC (EX9188END-MTCP-512)**
- Operating Temp: -25~75
- Power input: +10 to 30VDC (35/48VDC Available)
- Modbus/TCP
- For Modbus/RTU slave devices
- For Non-Modbus/RTU slave devices
- Series: EX9188E1D-MTCP, EX9188E2D-MTCP, EX9188E3D-MTCP, EX9188E4D-MTCP, EX9188E5D-MTCP, EX9188E8D-MTCP

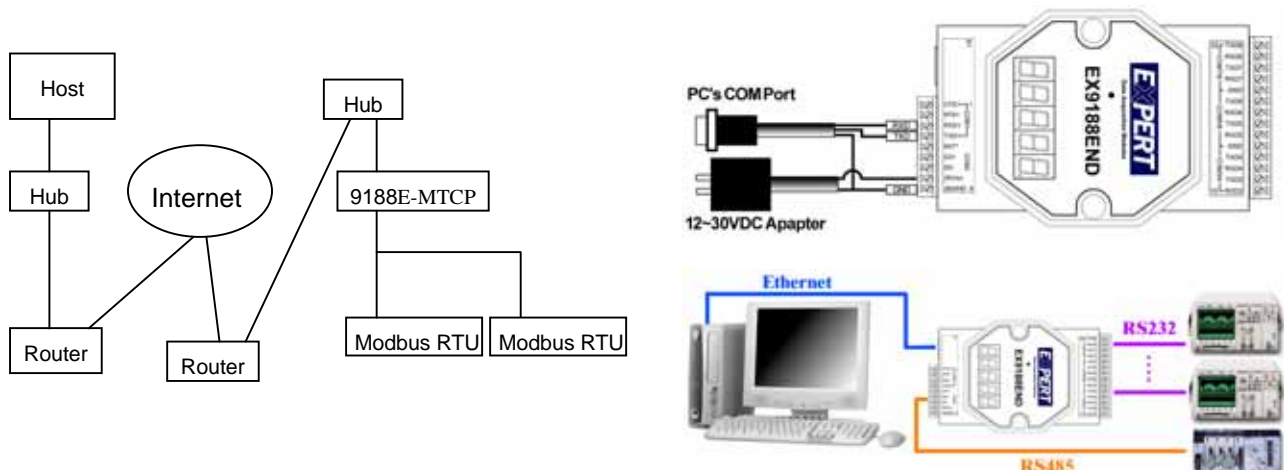


### Serial products:

Model No.	EX9188E1D-MTCP	EX9188E2D-MTCP	EX9188E3D-MTCP	EX9188E4D-MTCP	EX9188E5D-MTCP	EX9188E8D-MTCP
Ethernet port	10 BASE T	10 BASE T	10 BASE T	10 BASE T	10 BASE T	10 BASE T
COM1	RS232(5wire)	RS232(5wire)	RS232(5wire)	RS232(5wire)	RS232(5wire)	RS232(5wire)
COM2	x	RS485	RS485	RS485	RS485	RS485
COM3	x	x	RS232(3wire)	RS232(3wire)	RS232(3wire)	RS232(3wire)
COM4	x	x	x	RS232(3wire)	RS232(3wire)	RS232(3wire)
COM5	x	x	x	x	RS232(3wire)	RS232(3wire)
COM6	x	x	x	x	x	RS232(3wire)
COM7	x	x	x	x	x	RS232(3wire)
COM8	x	x	x	x	x	RS232(3wire)

Program download from COM1(RS232 3Wire)

### Simple Structure of EX9188E-MTCP



# EX9188E Series

Micro PLC w/Internet

## EX9188EX/EX9188EX-MTCP

### Key Specification/Special Features:

- Main board suitable for I/O Expansion board
- Support 1\*RS232, 1\*RS485
- Ethernet port for TCP/IP features TCP, UDP, IP, ICMP, ARP, RARP
- COM1 Can be used to download program and can be RS232 port
- Dual Watchdog support for system recovery
- CPU 80188, 40MHZ
  - SRAM 512KB
  - FLASH ROM 512KB
  - EEPROM 2KB
  - EMBEDDED OS RomDos(Datalight)
  - Support RTC/NVRAM
- Operating Temp: -25~75
- Power input: +10 to 30VDC (35/48VDC Available)
- Modbus/TCP to multi Modbus/RTU (**EX9188EX-MTCP**)
- For Modbus/RTU slave devices (**EX9188EX-MTCP**)



## I/O Expansion Board

### Expansion Board for EX9188EX/EX9188EX-MTCP:

	RS232	SRAM	Storage Flash	D/I	D/O	D/A	A/D
EX100	X	X	X	*7	X	X	X
EX101	X	X	X	X	*7	X	X
EX310 Series	EX310-1	X	X	*3	*2	*2	*2
	EX310-2	X	X	*2	*3	*1	*1
	EX310-3	X	X	*3	*2	*1	*1
	EX310-4	X	X	*2	*3	X	*2
	EX310-5	X	X	*3	*2	*2	X
	EX310-6	X	X	X	X	X	*1
EX509 Series	EX509-1	*2	X	*5	*2	X	X
	EX509-2	*2	X	*4	*3	X	X
	EX509-3	*2	X	*3	*4	X	X
	EX509-4	*2	X	*2	*5	X	X
EX603	X	X	16M Bytes	X	X	X	X
EX604	X	X	32M Bytes	X	X	X	X
EX607	X	256K	X	X	X	X	X
EX608	X	512K	X	X	X	X	X

P.S. RS232 3-Wire up to 115.2K  
 SRAM with Battery Backup.  
 D/A Range: 0~10V  
 A/D Range: 0~10V/0~20mA



## Software Support for download

### **EX9000 Series**

Diag Program (Simple Diagnostic for Ex9000 Series)  
Utility [EX9000 Series (DIO, AIO): Searching, Address & Baud Rate  
Checksum & Slew Rate & Configuration & Signal Input & Output]  
DLL(Dynamic link Library for develop the driver of application system)  
VB Demo  
T9K OPC Server

### **EX9188XD & EX9188XD-MRTU Series**

Romdisk (Image file for download to Flash ROM of EX9188XD series)  
Library (Library for function call of EX9188XD series)  
Demo (Example of Demo program for EX9188XD series)  
Modbus Demo (To become Modbus converter from RS232/RS485 interface)  
Emulator By C++  
Modbus RTU/Slave source program

### **EX9188END & EX9188END-MTCP Series**

Utility(Wizard: Wire connection, Configuration; Download Image file;  
Nettest; Trouble Shooting; Modbus Setting & Testing)  
Winsocket VB Demo  
InfoSet (EX9188END & EX9188END-MTCPIP Series setting:  
MAC ADDR; IP ADDR; Gateway; Baud Rate; Data Bit; Parity; Stopbit;  
Default; Modbus Setting; Flow control Setting)  
Nettest (For Internet connection & execute the command of EX9000 series & EX9188END series)  
Rom (Image file for download to Flash ROM of EX9188END & EX9188END-MTCPIP series)  
TCP/IP Library (TCP/IP Library for function call of EX9188END series) & TCPIP demo  
UDP (To become a UDP feature for Ethernet port of TCP/IP)  
EViSP (Virtual Serial Port)/(Vir COM) [For Internet connections it can be  
used to take care of network protocol Layers and let the host computer  
visualize COM ports of EX9188END Series. It makes the host computer  
have virtual COM ports which and actually mounted in EX9188END Series.  
w/flow control setting & Modbus Enable/Disable Setting.]

### **EX952N Series**

EX9521 Romdisk (Image file for downland)  
EX9522 Romdisk  
EX9523 Romdisk  
EX9524 Romdisk  
EX9527 Romdisk

### **SCADA software compatible:**

iFix, Citect, Wonderware, Intouch, Iconix..etc



### EX9482VN

#### **Key Specification/Special Features:**

The EX9482VN is a full-function PC/104 CPU Module which integrates the VGA/TFT LCD panel, IDE CF, Ethernet, GPIO and other enhanced I/O interface on a PC104 CPU Modules

This modules uses an embedded SGS-THOMSON STPC ATLAS PENTIUM performance 5x86DX2-133MHZ low power CPU and embedded 32MB SDRAM on board.



#### **PC/104 ISA-Bus Embedded CPU Module**

**CPU:** STPC ATLAS 5x86DX2-133MHZ low power CPU (Fanless)

**System memory:** On-board 32MB SDRAM (up to 64MB)

**Bus Interface:** PC/104 ISA Bus

**Display:** SVGA CRT/TFT interface

**Lan:** 10/100 Mbps RTL8139C PCI controller

**CompactFlash Slot:** One IDE CompactFlash Slot

**Serial Ports:** Three RS-232C(COM2) and one RS-232/485 serial Ports(COM1)

**Solid state disk:** One expended 320-pin sockets for M-system DiskOnChip

**EEPROM:** Provide 256 words(16bit) EEPROM register for user

**General Purpose I/O interface:** Provide 16 channels TTL level General Purpose I/O interface. Each channel can be software programmed to be input or output individual software programmable interrupt mask.

**Watch Dog Timer:** The watchdog timer range from 0 to 254 sec

**Power Supply voltage:** +5VDC

**Power Consumption:** +5VDC/1.6A(Max)

**Dimensions:** 96(L)\*90(W)mm

### EX9529

#### **Key Specification/Special Features:**

**CPU+Chipset :** NS Geode GXLV/GX1 & GX5530A chipset with built-in 6x86-166/233/300/333 MMX CPU, GXLV support low-power 0~85°C CPU (1.5~5.4W), GX1 support very low-power 0~85°C CPU (0.8~3W)

**Cache Memory:** 16KB L1 cache memory

**I/O Chipset:** NS PC97317

**BIOS:** Award BIOS, 128KB (Flash) EPROM

**DRAM:** 1 x 144-pin SO-DIMM socket on solder side support 8MB ~ 128MB SDRAM

**LCD/VGA w/ MPEG II:** SMA 64-bit TFT LCD/CRT, support CRT and 18-bit TFT LCD flat panel up to 1280x1024x8 BPP and 1024x768x16 BPP, support MPEG1 and MPEG2 assist, 41-pin LCD connector;

**DSTN signal:** for optional DSTN board

**Audio signal:** for optional Audio daughter board

**USB x 2:** Pin header

**IrDA:** Pin header

**Optional IDE Flash Disk:** Daughter board support 8/16/32/64/96/128/192MB IDE Flash Disk

**CMOS Backup:** Backup by Li battery

**PS/2 Keyboard:** 5-pin header

**PS/2 Mouse:** 5-pin header

**IDE Interface:** support one port up to 2 x IDE devices

**FDD:** Two 3 1/2" or 5 1/4" FDD, Drives A, B swappable

**Parallel Port:** One bi-directional SPP/EPP/ECP parallel port configured as LPT1,2,3

**Serial Port x 2:** 16-byte FIFO 16C550 serial port jumper selectable RS-232 x 1 + RS-232/422/485 x 1

**Watchdog Timer:** Programmable 0 ~ 30 sec

**Miscellaneous Connectors/Jumpers:** Reset, HDD LED, 2-pin/3-pin single +5V power connector

**Power Requirement:** Single +5V power by using 2-pin/3-pin connector

**Operating Temperature:** 0 ~ 60°C. 0 ~ 85°C low-power CPU just need metal cooler



### EX9544

#### Key Specification/Special Features:

**CPU + Chipset:** NS Geode GXLV/GX1 & CX5530A chipset with built-in 6x86-166/233/300/333 MMX CPU, GXLV support low-power CPU (1.5W ~ 5.4W), GX1 support very-low-power CPU (0.8W ~ 3W)

**Cache Memory:** 16KB L1 cache memory

**I/O Chipset:** NS PC97317 + SMC669

**BIOS:** Award BIOS, 128KB (Flash) EPROM

**DRAM:** 1 x 144-pin SO-DIMM socket support up to 128MB SDRAM and low-profile application

**LCD/CRT w/ MPEG II:** SMA 64-bit TFT LCD/CRT, support CRT and 18-bit TFT LCD flat panel up to 1280x1024x8 BPP and 1024x768x16 BPP, support MPEG1 and MPEG2 assist, 44-pin LCD connector. Optional DSTN daughter board.

**100/10M Ethernet with BOOT ROM:** Intel 82559 100/10Mbps Ethernet with optional BOOT ROM

**100/10M Ethernet x 2:** Optional 2nd Intel 82559 100/10M Ethernet on board

**Flash Disk SSD:** 32-pin socket for DiskOnChip SSD 8MB ~ 288MB

**Optional Compact Flash II socket:** Support IDE Flash Disk or IBM 340MB/1GB Micro Drive HDD

**Audio:** 16-bit stereo FM synthesis, OPL3 emulation

**Touch Panel interface:** Optional

**USB2 and IrDA:** Pin header

**High-quality NTSC/PAL TV-out:** Optional on board

**LVDS/DSTN daughter board:** Optional

**GPS Socket:** Optional socket for 2nd generation GPS

**Bus type:** PC/104 socket and PCI slot

**Speaker:** Buzzer on Board

**CMOS Backup:** Backup by Li battery

**PS/2 Keyboard +PS/2 Mouse:** 8-pin header

**IDE Interface x 2:** Support up to 4 x IDE devices

**FDD:** Two 3 1/2" or 5 1/4" FDD, Drives A, B swappable

**Parallel Port:** One bi-directional SPP/EPP/ECP

**Serial Port x 4:** 16-byte FIFO 16C550 serial port jumper selectable RS-232 x 3 +RS-232/422/485 x 1 (Serial Port support +5V and +12V voltage)

**Watchdog Timer:** Programmable 0 ~ 1024 sec.

**Power Requirement:** +/-5V, +/-12V power by using ATX connector; or, single +5V by 2-pin connector with optional hi-current +12V for LCD inverter

**Dimension:** 203mm x 146mm

**Operating Temperature:** 0 ~60°C. 0 ~ 85°C CPU just need metal cooler (don't need fan)



### EX9546

#### Key Specification/Special Features:



**CPU + Chipset:** NS GXLV/GX1 processor & CX5530A chipset with built-in 6x86-166/233/300/333 MMX CPU, GXLV support low-power 0~85 CPU (1.5W ~ 5.4W), GX1 support very-low-power CPU (0.8W ~ 3W)

**Cache Memory:** 16KB L1 cache memory

**I/O Chipset:** NS PC97317 + SMC669

**BIOS:** Award BIOS, 128KB (Flash) EPROM

**DRAM:** 1 x 144-pin SO-DIMM socket support up to 128MB SDRAM and low-profile application

**LCD/VGA w/ MPEG II:** SMA 64-bit LCD/VGA, support CRT and 18-bit TFT LCD flat panel up to 1280x1024x8 BPP and 1024x768x16 BPP, support MPEG1 and MPEG2 assist, 44-pin LCD connector; Optional LVDS/DSTN & -40V~+40V VEE supply

**100/10M Ethernet with BOOT ROM:** Realtek 8139C 100/10Mbps Ethernet with BOOT ROM

**Optional 100/10M Ethernet x 2:** Realtek 8139C

**Flash Disk SSD:** 32-pin socket for DiskOnChip

**Optional CompactFlash II socket:** Support IDE Flash Disk or IBM 340MB/1GB MicroDrive HDD

**Audio:** 16-bit stereo FM synthesis, OPL3 emulation

**Touch Panel interface:** Optional

**USB2 and IrDA:** Pin header

**High-quality NTSC/PAL TV out:** Optional on board

**LVDS/DSTN daughter board:** Optional

**GPS Socket:** Socket for 1st & 2nd generation GPS

**Bus type:** PC/104 socket and PCI slot

**Speaker:** Buzzer on Board

**CMOS Backup:** Backup by Li battery

**PS/2 Keyboard +PS/2 Mouse:** 8-pin header

**IDE Interface x 2:** Support up to 4 x IDE devices

**FDD:** Two 3 1/2" or 5 1/4" FDD, Drives A, B swappable

**Parallel Port:** One bi-directional SPP/EPP/ECP parallel port configured as LPT1,2,3

**Serial Port x 4:** 16-byte FIFO 16C550 serial port jumper selectable RS-232 x 3+RS-232/422/485 x 1 (Serial Port support +5V and +12V voltage)

**Watchdog Timer:** Programmable 0 ~ 1024 sec.

**Power Requirement:** +/-5V, +/-12V power by using ATX connector; or, single +5V by 2-pin connector with optional hi-current +12V for LCD inverter

**Dimension:** 203mm x 146mm

**Operating Temperature:** 0 ~ 60°C. 0~85°C CPU just need metal cooler (don't need fan)



### EX9588

#### **Key Specification/Special Features:**

**CPU+Chipset:** NS Geode GXLV/GX1 & GX5530A chipset with built-in 6x86-166/233/300/333 MMX CPU, GXLV support low-power 0~85°C CPU (1.5~5.4W), GX1 support very low-power 0~85°C CPU (0.8~3W)

**Cache Memory:** 16KB L1 cache memory

**I/O Chipset:** NS PC97317

**BIOS:** Award BIOS, 128KB (Flash) EPROM

**DRAM:** 1 x 144-pin SO-DIMM socket on solder side support 8MB ~ 128MB SDRAM

**LCD/VGA w/ MPEG II:** SMA 64-bit TFT LCD/CRT, support CRT and 18-bit TFT LCD flat panel up to 1280x1024x8 BPP and 1024x768x16 BPP, support MPEG1 and MPEG2 assist, 41-pin LCD connector;

**DSTN signal:** for optional DSTN board

**Audio signal:** for optional Audio daughter board

**USB x 2:** Pin header

**IrDA:** Pin header

**Optional IDE Flash Disk:** Daughter board support 8/16/32/64/96/128/192MB IDE Flash Disk

**CMOS Backup:** Backup by Li battery

**PS/2 Keyboard:** 5-pin header

**PS/2 Mouse:** 5-pin header

**IDE Interface:** support one port up to 2 x IDE devices

**FDD:** Two 3 1/2" or 5 1/4" FDD, Drives A, B swappable

**Parallel Port:** One bi-directional SPP/EPP/ECP parallel port configured as LPT1,2,3

**Serial Port x 2:** 16-byte FIFO 16C550 serial port jumper selectable RS-232 x 1 + RS-232/422/485 x 1

**Watchdog Timer:** Programmable 0 ~ 30 sec

**Miscellaneous Connectors/Jumpers:** Reset, HDD LED, 2-pin/3-pin single +5V power connector

**Power Requirement:** Single +5V power by using 2-pin/3-pin connector

**Operating Temperature:** 0 ~ 60°C. 0 ~ 85°C low-power CPU just need metal cooler



### EX9612

#### Key Specification/Special Features:

##### General Specifications:

**CPU** : Intel Ultra Low Voltage Celeron 400MHz to Low Voltage PentiumIII 933MHz processor with FSB 100/133 MHz EBGA package.

**Chipset** : Intel 815E with Integrated VGA AGP 2X Graphics core and Intel ICH2

**BIOS** : AWARD Flash BIOS , FWH 4MB

**Green Function** : power saving supported in BIOS. DOZE / STANDBY / SUSPEND modes, ACPI & APM

**L2 Cache** : Integrated on CPU (256 KB / 512 KB)

**DRAM Memory** : Onboard SODIMM socket up to 512MB of SDRAM

**Mini PCI** : supports single slot Mini PCI Type III.

**Enhanced IDE with UltraDMA** : supports single port and up to 2 ATAPI devices, Ultra DMA transfer 33 MB/sec.

**Real-time Clock** : built-in chipset with lithium battery backup. CMOS data backup of BIOS setup and BIOS default.

**Watchdog Timer** : 256 levels timer generate RESET

##### High Speed Multi I/O:

**Chipset** : Winbond 83627HF

**Serial Ports** : Three high speed RS-232C ports (COM1, COM3, COM4). One high speed RS-232C/422/485 port COM2 (jumper selectable). Both with 16C550 compatible UART.

**USB** : 4 onboard USB ports Ver 1.1.

**SIR Interface** : onboard IrDA TX/RX port (on COM4)

**Floppy Disk Drive Interface** : 2 floppy disk drives, 3 1/2" (720 KB, 1.44 MB or 2.88 MB).

**Bi-directional Parallel Port** : SPP, EPP and ECP mode.

**Keyboard and Mouse Connectors** : external PS/2 KB/Mouse port (2-in-1 mini DIN)

**Audio Chipset**: Intel ICH2 AC97 2.0 compliant, Multistream Direct Sound and Direct Sound 3D acceleration. (Line-in, CD Audio in, MIC in, Speaker out)

##### Network Interface Controller:

**Chipset** : Single Intel 82562ET, 10/100 Mbps

**Connector** : external RJ-45 with LEDs on connector

##### Display Controller:

###### Flat Panel / CRT (EX-9612VL)

**Chipset**: Intel 82815E integrated 2D/3D Video Accelerator, supporting 2x AGP and 128-bit engine

**Display Memory**: Shared Memory by Intel Dynamic Video Memory Technology

**Display Type**: CRT, TMDS

**CRT**: up to 1280 x 1024 @ 24 bpp

**TMDS**: DVI Transmitter up to 165MHz



##### Flat Panel / CRT (Ex-9612VLS):

**Chipset**: SMI Lynx3DM+ SMI 722, 128-bit GUI 3D engine

**Display Memory**: 8MB on-die SGRAM

**Display Type**: CRT and Flat Panel (MONO, DSTN, TFT), Dual Display

**CRT**: up to 1280x1024 @ 24bpp

**LCD Interface**: TTL 24-bit, LVDS 24-bit

**TV-out**: Support NTSC, PAL NTSC-EIA (Japan) format, 640 x 480 resolutions

##### SSD Interfaces:

###### Compact Flash Card (CFC)

**Compact Flash Socket** : supports Type I/II CFC

**Capacity** : up to 1GB CFC

##### Environmental and Power

###### (EX-9612VLS/C400 and 256MB SDRAM):

**Power Requirements** : +5 V @ 2.23 A (typical); (Ultra Low Voltage Embedded Intel Celeron 400 MHz and 256MB SDRAM)

**Board Dimensions** : 145mm x 102mm

**Board Weight** : 0.176kg

**Operating Temperature** : 0 to 60°C (32 to 140°F)

**Operating Humidity** : 0%~90%

### EX9640

#### Key Specification/Special Features:



**CPU:** Support both Coppermine Pentium III and Celeron Socket 370  
CPU up to 1GHz, ZIF socket

**System chip:** Intel 82443BX/82371EB chipset

**Cache:** Built in CPU

**BIOS:** Award/AMI BIOS, 256KB (Flash) EPROM

**DRAM:** 1 x 168-pin DIMM socket support SDRAM DRAM up to 512MB memory

**LCD/ LVDS/ CRT/ TV-out:** Top-performance **Dual-View** S3 AGP-2X 128-bit 3D CRT/LCD with **8MBSGRAM**, support CRT to 1600x1200 true color and TFT/DSTN LCD panel to 1280x1024 resolution, **Dual-View** technology support simultaneous different images & refresh rate on LCD/CRT, LCD/TV; Integrated single-channel 10MHz **LVDS** transmitter, and top-quality NTSC/PAL **TV-out** without Macrovision. MPEG-2 video textures and motion compensation for full speed DVD playback.

**Optional Video IN/ Capture:** pin header

**100/10M LAN x 2:** Intel 82559 100/10M Ethernet x 1, UTP port; optional on-board **LAN x 2**

**Audio:** C-MEDIA hi-end PCI 3D audio support A3D/DirectSound 3D/DirectMusic/AC3 5.1CH interface.

**USB and IrDA:** USB and IrDA pin header on board

**Temperature monitoring:** Beeping alarm when CPU's temperature over heating 55°C±5°C.

**CompactFlash I/ II Socket:** CF-2 Socket for Flash Disk or IBM 340MB/1GB MicroDrive

**Touch Panel interface:** Optional

**GPS Socket:** Optional

**Bus type:** PC/104 socket, PCI slot x 1

**Speaker:** Buzzer on Board

**CMOS Backup:** Backup by 12887 or equivalent

**PS/2 Keyboard:** 5-pin JSP header

**PS/2 Mouse:** 5-pin JSP header

**IDE x 2 port:** Support up to 4 x IDE devices

**FDD:** Two 3.5" or 5.25" FDD or LS120

**Parallel Port:** One bi-directional SPP/EPP/ECP port

**Serial Port x 4:** RS-232 x 3 + RS-232/422/485 x 1 (Serial Port support +5V & +12V)

**WDT:** Programmable 0 ~ 1024 sec

**Power Requirement:** +/-5V & +/-12V by ATX power

**Dimension:** 203mm x 146mm

**Operating Temperature:** 0 to 60°C (140°F)

### EX9670/9671

#### Key Specification/Special Features:

**CPU:** **low-power fanless** P-III class VIA Eden ESP ESP4000/5000/6000 400/533/667MHz 0~85 °C CPU, 3W/5W/5W, 128K L1 cache & 64K L2 cache, 133 FSB.

**System chip:** VIA VT8606 (PN133T Twister-T) & VT82C686A/B

**Cache:** 128K L1 Cache & 64K L2 Cache built in CPU

**BIOS:** Award/AMI BIOS, 256KB (Flash) EPROM

**DRAM:** 1 x 168-pin DIMM socket support memory up to 512MB PC133/PC100 SDRAM/ VCM-SDRAM

**AGP-4X LCD/ LVDS/ CRT:** AGP-4X Savage4 3D/2D LVDS/TFT/DSTN LCD/CRT W/ 8M~32M SDRAM memory (share system memory as display memory), support **1600x1200 TFT/DSTN/LVDS (2-channel 110MHz) LCD & 1920x1440 2D/3D CRT**

**DVD:** Hardware-Assisted MPEG-2 architecture for DVD full-screen video playback

**TV-out:** Signal pin for optional TV-out daughter board

**100/10M LAN:** Realtek 8139C 100/10M LAN ( or Intel 82559 100/10M)

**CompactFlash I/II socket:** CF-2 socket for IDE Flash Disk, or, IBM 1.8" MicroDrive 340MB/1GB HDD

**USBx4 and IrDA:** USB and IrDA pin header on board

**Touch Panel interface:** Support 4/5/7/8-wire Panel and almost all OS and real-time OS

**Audio:** AC97 Audio on board

**Temperature/fan monitoring:** 686B on-chip function

**Digital I/O:** 4-bit DI and 4-bit DO, TTL level

**Bus type:** PC/104 socket, PCI slot x 1 (suitable Position for riser card for low-profile application)

**Speaker:** Buzzer on Board

**CMOS Backup:** Backup by Li battery

**PS/2 Keyboard & PS/2 Mouse:** 5-pin JSP header

**ATA100/66/33 IDE Port x 2:** Up to 4 x IDE devices

**FDD:** Two 3.5" or 5.25" FDD or LS120

**Parallel Port:** Bi-directional SPP/EPP/ECP port

**Serial Port x 4:** RS-232 x 3 + RS-232/422/485 x 1

**Watchdog Timer:** Programmable 0 ~ 256 sec.

**Power Requirement:** +/-5V & +/-12V by ATX power; and, single +5V by 2-pin power connector

**Dimension:** 203mm x 146mm

**Operating Temperature:** 0 to 60 °C (140 °F) and 0~85 °C CPU support fanless application.



**EX9671: W/ 2 or 3 LAN**

### EX9679

#### Key Specification/Special Features:

**CPU:** P-III class VIA Eden ESP ESP4000/5000/6000 400/533/667MHz low-power fanless CPU, 3W/5W/5W, 128K L1 cache and 64K L2 cache, 133 FSB, 0~85C.

**System chip:** VIA VT8606 (PN133T Twister-T) & VT82C686A/B

**Cache:** 128K L1 Cache & 64K L2 Cache built in CPU

**BIOS:** Award/AMI BIOS, 256KB (Flash) EPROM

**DRAM:** 1 x 144-pin DIMM socket support memory up to 256MB PC133/PC100 SDRAM/ VCM-SDRAM

**AGP-4X LCD/ LVDS/ CRT:** AGP-4X Savage4 3D/2D LVDS/TFT/DSTN LCD/CRT W/ 8M~32M SDRAM memory (share system memory as display memory), support 1600x1200 TFT/DSTN/LVDS (2-channel 110MHz) LCD & 1920x1440 2D/3D CRT

**DVD:** Hardware-Assisted MPEG-2 architecture for DVD full-screen video playback

**100/10M Ethernet x 1:** Realtek 8139C LAN x 1, or, Intel 82559 LAN x 1

**Optional AC97 audio:** AC97 audio daughter board

**USBx2 and IrDA:** USB and IrDA pin header on board

**Temperature/fan monitoring:** 686B on-chip function

**CompactFlash I / II Socket:** CF-2 socket for IDE Flash Disk, or, IBM 1.8" MicroDrive 340MB/1GB HDD

**Digital I/O:** 4-bit DI and 4-bit DO, TTL level

**Bus type:** PC/104 socket.

**Speaker:** Buzzer on Board

**CMOS Backup:** Backup by Li Battery

**PS/2 Keyboard & Mouse:** 5-pin JSP header

**ATA100/66/33 IDE Port x 1:** Up to 2 x IDE devices

**FDD:** Two 3.5" or 5.25" FDD or LS120

**Parallel Port x 1:** Bi-directional SPP/EPP/ECP port

**Serial Port x 4:** RS-232 x 3 + RS-232/422/485 x 1 (+5V/+12V Power Output in Pin1 or Pin9 via jumper setting, TTL-level Reserved in COM2)

**WDT:** Programmable 0 ~ 256 sec

**Power Requirement:** +5V & +12V or Single +5V by 4-pin power connector; ATX Power control pin

**Dimension:** 145mm x 102mm

**Operating Temperature:** 0 to 60 (140 ) and 0~85 CPU support fanless application.





### EX9680

#### **Key Specification/Special Features:**

**CPU:** Support Intel Socket 370 Tualatin, Pentium III, Celeron & VIA C3 CPU up to 1.3GHz+, ZIF socket. Support 133/100/66 FSB (Front Side Bus)

**System chip:** VIA Chipset

**Cache:** Built in CPU

**BIOS:** Award/AMI BIOS, 256KB (Flash) EPROM

**DRAM:** 1 x 168-pin DIMM socket support memory up to 512MB  
PC133/PC100 SDRAM/ VCM-SDRAM

**AGP-4X LCD/ LVDS/ CRT:** AGP-4X Savage4 3D/2D LVDS/TFT/DSTN LCD/CRT W/ 8M~32M SMA memory (share system memory as display memory), support 1600x1200 TFT/DSTN/LVDS (2-channel 110MHz) LCD & 1920x1440 2D/3D CRT

**DVD:** Hardware-Assisted MPEG-2 architecture for DVD full-screen video playback

**TV-out:** Signal pin for optional TV-out daughter board

**100/10M Ethernet x 1:** Realtek 8139C LAN x 1, or, Intel 82559 LAN x 1

**CompactFlash /II socket:** CF-2 socket for IDE Flash Disk, or, IBM 1.8" MicroDrive 340MB/1GB HDD

**Audio:** AC97 Audio on board

**Touch Panel interface:** Support 4/5/7/8-wire Panel and almost all OS and real-time OS

**USB4 and IrDA:** USB and IrDA pin header on board

**Temperature/fan monitoring:** 686B on-chip function

**Digital I/O:** 4-bit DI and 4-bit DO, TTL level

**GPS Socket:** Socket for 1st & 2nd generation GPS

**Bus type:** PC/104 socket, PCI slot x 1 (suitable Position for riser card for low-profile application)

**Speaker:** Buzzer on Board

**CMOS Backup:** Backup by Li battery

**PS/2 Keyboard & PS/2 Mouse:** 5-pin header

**ATA100/66/33 IDE Port x 2:** Up to 4 x IDE devices

**FDD:** Two 3.5" or 5.25" FDD or LS120

**Parallel Port:** Bi-directional SPP/EPP/ECP port

**Serial Port x 4:** RS-232 x 3 + RS-232/422/485 x 1

**Watchdog Timer:** Programmable 0 ~ 256 sec.

**Power Requirement:** +/-5V & +/-12V by ATX power

**Dimension:** 203mm x 146mm

**Operating Temperature:** 0 to 60 (140 )



### EX9686

#### Key Specification/Special Features:

**CPU:** Support Intel Socket 370 **Tualatin**, Pentium III, Celeron & VIA C3 CPU up to 1.3GHz+, or above, ZIF socket. Support 133/100/66 FSB (Front Side Bus)

**System chip:** VIA VT8606 (PN133T Twister-T) & VT82C686A/B, SMC666/669

**Cache:** Built in CPU

**BIOS:** Award/AMI BIOS, 256KB (Flash) EPROM

**DRAM:** 1 x 168-pin DIMM socket support memory up to 512MB PC133/PC100 SDRAM/ VCM-SDRAM

**AGP-4X LCD/ LVDS/ CRT:** AGP-4X Savage4 3D/2D LVDS/TFT/DSTN LCD/CRT W/ 8M~32M SMA memory (share system memory as display memory), support 1600x1200 TFT/DSTN/LVDS (2-channel 110MHz) LCD & 1920x1440 2D/3D CRT

**DVD:** Hardware-Assisted MPEG-2 architecture for DVD full-screen video playback

**TV-out:** Signal pin for optional TV-out daughter board

**100/10M Ethernet x 2: Realtek 8139C LAN x 2.**

**CompactFlash I/II socket:** CF-2 socket for IDE Flash Disk, or, IBM 1.8" MicroDrive 340MB/1GB HDD

**Optional Audio:** Signal pin for audio daughter board

**Touch Panel interface:** Support 4/5/7/8-wire Panel and almost all OS and real-time OS

**USB4 and IrDA:** USB and IrDA pin header on board

**Temperature/fan monitoring:** 686B on-chip function

**Digital I/O:** 4-bit DI and 4-bit DO, TTL level

**Bus type:** PC/104 socket, PCI slot x 1 (suitable Position for riser card for low-profile application)

**Speaker:** Buzzer on Board

**CMOS Backup:** Backup by Li battery

**PS/2 Keyboard & PS/2 Mouse:** 5-pin JSP header

**ATA100/66/33 IDE Port x 2:** Up to 4 x IDE devices

**FDD:** Two 3.5" or 5.25" FDD or LS120

**Parallel Port:** Bi-directional SPP/EPP/ECP port

**Serial Port x 4:** RS-232 x 3 + RS-232/422/485 x 1

**Watchdog Timer:** Programmable 0 ~ 256 sec.

**Power Requirement:** +/-5V & +/-12V by ATX power

**Dimension:** 203mm x 146mm

**Operating Temperature:** 0 to 60 (140 )



### EX9710

#### Key Specification/Special Features:

**CPU+Chipset:** CPU:Socket 478 for Intel Pentium-M and Celeron-M CPU, Optional BGA type Celeron-M soldered, 400/533 FSB.

**System chip:** Intel 855GME + 6300ESB

**Cache:** built in CPU

**BIOS:** Phoenix-Award BIOS, 4Mbit with LAN boot ROM

**DRAM:** 1 x 184-pin DDR DIMM socket

**DualView LVDS / DVI / CRT:**

LVDS/DVI LCD / CRT with max. 256MB SMA memory (share system memory as display memory), support 1280x1024 LVDS, 2048x1536 DVI & 1600x1200 CRT

**DVD:**Hardware-Assisted MPEG-2 architecture for DVD full-screen video playback

**100/10M Ethernet x 1:** Realtek 8100C LAN x 1

**Optional 1G/100M/10M Ethernet:** RTL 8110S

**CompactFlash I/II socket:** CF-2 socket for IDE Flash Disk, or, IBM 1.8"

**MicroDrive 340MB/1GB HDD**

**USB2.0x4 and IrDA:** USB2.0 and IrDA pin header

**Audio:** AC97 Audio on board

**Bus type:** PC/104-Plus (PC/104+) PCI only PCI-104 socket x 1

PCI slot x 1 support up to 4 PCI masters

Mini-PCI Type-III socket x 1

**Speaker:** Buzzer on Board

**CMOS Backup:** Backup by Li battery

**PS/2 Keyboard & PS/2 Mouse:** 5-pin JSP header

**ATA100 IDE Port x 2:** Up to 4 x IDE devices

**SATA-150 IDE Port x 2:** Support Serial ATA IDE devices

**FDD:** Two 3.5" or 5.25" FDD or LS120

**Parallel Port x 1:** Bi-directional SPP/EPP/ECP port

**Serial Port x 4:** RS-232 x 3 + RS-232/422/485 x 1

**WDT:** Up to 300 level as RESET feature

**Power Requirement:** +/-5V & +/-12V by ATX power

**Dimension:** 203mm x 146mm

**Operating Temperature:** 0 to 60 (140 )



### EX9741

#### Key Specification/Special Features:

##### Feature :

- Intel Ultra Low Voltage Celeron M 1.0Ghz CPU FSB400
- Intel Low Voltage Pentium M Dothan 1.4Ghz CPU FSB400
- Intel Pentium M Dothan socket 478 CPU up to 2.0Ghz
- One PC/104-Plus Interface
- Support 6 RS-232 Serial Ports with Daughter Board (Optional)
- Support 16-bit Programmable DIO with Daughter Board (Optional)
- Support Dual Independent Displays
- Support DDR 200/266 up to 1GB DDR SDRAM
- Support 6 High Speed USB 2.0 Ports

##### System

###### CPU :

- Intel Pentium M Socket 478 CPU up to 2.0G FSB400Mhz
- Intel ULV Celeron M 1000Mhz CPU FSB400Mhz

###### Optional :

- Intel ULV Celeron M 600Mhz CPU FSB400Mhz
- Intel Low Voltage Pentium M 1.4Ghz CPU FSB400Mhz

**Cache :** 2nd level 2MByte

**Memory :** 1 x 200Pin SO-DIMM up to 1GB DDR SDRAM

**Chipset :** Intel 852GM + Intel ICH4

**BIOS :** Phoenix-AWARD PnP Flash BIOS

**ATA/IDE :** 1 x Ultra DMA 33, support 2 IDE drives

**Flash Disk :** 1 x Type II Compact Flash Disk Socket

**Watchdog Timer :** 255-level Reset

##### I/O

**Serial Port :** 2 x RS-232 ports (COM1/2)

**Parallel port :** SPP/EPP/ECP mode share with Floppy

**Floppy :** Support 1 floppy disk drive share with LPT

**USB port :** 6 x USB 2.0 compliant

**KB/MS :** 1 x PS2 K/B and Mouse

**Expansion Bus :** 1 x 32 bit/33MHz PCI interface to support 3 PCI master

##### Eethernet

**Chipset :** Intel 82856ET 10/100 base-T Built-in Boot ROM in Flash BIOS, support Boot from LAN

##### Audio

**Codec / Interface :** Realtek ALC655A AC97 Codec, support Mic-in / Line-in / Line-out



##### Display

**Graphics Chipset :** Intel 852GM Extreme Graphics2 Engine up to 64MByte UMA Video RAM

**Graphics Interface :** CRT support CRT QXGA up to 2048 x 1536 LCD support 18/48bit LVDS UXGA up to 1600 x 1200

TV-out support NTSC/PAL up to 1024 x 768

DVI support 12bit up to 1024 x 768

Dual Mode support independent dual display

##### Mechanical & Environmental

**Power Consumption :** Ex-9741 5V/2.86A~5.62A

**Operating Temperature :** 0°C ~ 60°C (32 ~ 140°F)

**Operating Humidity :** 5% ~ 95%(non-condensing)

**Dimension (L x W) :** 145 x 102 mm (5.7" x 4 ")

**Weight :** 0.85 kg (0.19lb)

### EX9761

#### Key Specification/Special Features:

##### Feature :

Intel Ultra Low Voltage Celeron M 1.0Ghz CPU FSB400  
Intel Low Voltage Pentium M Dothan 1.4Ghz CPU FSB400  
Intel Pentium M Dothan socket 478 CPU up to 2.0Ghz  
**One PCI Interface to support 3 PCI master**  
Support 6 RS-232 Serial Ports with Daughter Board(Optional)  
Support 16-bit Programmable DIO with Daughter Board (Optional)  
Support Dual Independent Displays  
**Support DDR 200/266 up to 1GB DDR SDRAM**  
**Support 6 High Speed USB 2.0 Ports**

##### System

###### CPU :

Intel Pentium M Socket 478 CPU up to 2.0G FSB400Mhz  
Intel ULV Celeron M 600Mhz CPU FSB400Mhz

###### Optional :

Intel ULV Celeron M 1.0Ghz CPU FSB400Mhz  
Intel Low Voltage Pentium M 1.4Ghz CPU FSB400Mhz

**Cache :** 2nd level 2MByte

**Memory :** 1 x 200Pin SO-DIMM up to 1GB DDR SDRAM

**Chipset :** Intel 852GM + Intel ICH4

**BIOS :** Phoenix-AWARD PnP Flash BIOS

**ATA/IDE :** 1 x Ultra DMA 33, support 2 IDE drives

**Flash Disk :** 1 x Type II Compact Flash Disk Socket

**Watchdog Timer :** 255-level Reset

##### I/O

**Serial Port :** 2 x RS-232 ports (COM1/2)

**Parallel port :** SPP/EPP/ECP mode share with Floppy

**Floppy :** Support 1 floppy disk drive share with LPT

**USB port :** 6 x USB 2.0 compliant

**KB/MS :** 1 x PS2 K/B and Mouse

**Expansion Bus :** 1 x 32 bit/33MHz PCI interface to support 3 PCI master

##### Eethernet

**Chipset :** Intel 82856ET 10/100 base-T Built-in Boot ROM in Flash BIOS,  
support Boot from LAN

##### Audio

**Codec / Interface :** Realtek ALC655A AC97 Codec, support  
Mic-in / Line-in / Line-out



##### Display

**Graphics Chipset :** Intel 852GM Extreme Graphics2  
Engine up to 64MByte UMA Video RAM

**Graphics Interface :** CRT support CRT QXGA up to 2048  
x 1536 LCD support 18/48bit LVDS UXGA up to 1600 x  
1200 TV-out support NTSC/PAL up to 1024 x 768 DVI  
support 12bit up to 1024 x 768 Dual Mode support  
independent dual display

##### Mechanical & Environmental

**Power Consumption :** Ex-9761 5V/2.86A~5.62A

**Operating Temperature :** 0°C ~ 60°C (32 ~ 140°F)

**Operating Humidity :** 5% ~ 95%(non-condensing)

**Dimension (L x W) :** 145 x 102 mm (5.7" x 4 ")

**Weight :** 0.85 kg (0.19lb)



### EX9370

#### Key Specification/Special Features:

**CPU+Chipset:** ALI M6117C single chip with on-chip 386SX-40 CPU

**I/O Chipset:** SMC37C669 I/O chipset

**BIOS:** AMI BIOS, 128KB (Flash) EPROM

**DRAM:** 4MB (optional 1MB) DRAM soldered on board and optional  
1 x 72-pin SIMM socket

**Flash Disk SSD:** 32-pin socket for DiskOnChip SSD 2MB ~ 288MB

**Bus type:** PC/104 Connector and ISA bus

**Speaker:** Buzzer on board

**CMOS Backup:** Backup by Li battery

**Keyboard:** 5-pin header and mini DIN connector

**PS/2 Mouse:** 5-pin header and mini DIN connector

**IDE Interface:** support one port up to 2 x IDE devices

**FDD:** Two 3 1/2" or 5 1/4" FDD, Drives A, B swappable

**Parallel Port:** One bi-directional SPP/EPP/ECP parallel port configured as LPT1,2,3

**Serial Port x 2:** Two 16-byte FIFO 16C550 RS-232/485. Jumper selectable RS-232 x 1 + RS-232/422/485 x 1

**Serial Port x 4 (optional):** COM x 4 for NC-370C, Jumper selectable RS-232 x 3 +  
RS-232/422/485

**Watchdog Timer:** Programmable 1, 2, 4, 8, 16, 32, 64, 128, 256 & 512 sec. Optional 0 ~ 1024 sec. with 4 sec.  
interval (256 levels)

**Miscellaneous Connectors/Jumpers:** Reset, HDD LED, Single +5V 2-pin connector, +/-5V and +/-12V 6-pin  
P8 Power connector for external power

**Power Requirement:** Single +5V power by using 2-pin connector or +/-5V @2.0A, +/-12V @20mA by using  
6-pin P8 power connector

**Dimension:** 185mm x 122mm

**Operating Temperature:** 0 – 60°C (140°C)



### EX9523

#### Key Specification/Special Features:



- CPU+Chipset:** NS Geode GXLV/GX1 & CX5530A chipset W/ on-chip 6x86-166/233/300/333 MMX CPU, GXLV support low-power type (1.5W~5.4W), GX1 support very low-power type (0.8W~3W)
- Cache Memory:** 16KB L1 cache memory
- I/O Chipset:** NS PC97317
- BIOS:** Award BIOS, 128KB (Flash) EPROM
- DRAM:** 1 x 168-pin SO-DIMM socket support 8MB ~ 128MB SDRAM
- LCD/CRT:** On-chip shared-memory 64-bit LCD/CRT, support CRT and 18-bit TFT LCD flat panel up to 1280x1024x8 BPP and 1024x768x16 BPP, support MPEG1 and MPEG2 assist, 44-pin LCD connector
- DSTN signal:** Support optional DSTN daughter board
- 100/10M Ethernet:** Realtek 8139 100/10M Ethernet
- Flash Disk SSD:** 32-pin socket for DiskOnChip SSD 8MB ~ 288MB
- Audio signal:** Support AC97 audio daughter board
- Touch Panel interface:** Optional
- CompactFlash II socket:** Optional CF-2 socket for IDE Flash Disk or IBM MicroDrive 340MB/1GB HDD
- Bus type:** PC/104 Connector & PISA (PCI+ISA) bus
- IrDA and USB x 2**
- Speaker:** Buzzer on Board
- CMOS Backup:** Backup by Li battery
- PS/2 Keyboard:** 5-pin header and 6-pin mini-DIN
- PS/2 Mouse:** 5-pin header and 6-pin mini-DIN
- IDE Interface x 2:** Support up to 4 x IDE devices,
- FDD:** Two 3 1/2" or 5 1/4" FDD, Drives A, B swappable
- Parallel Port:** One bi-directional SPP/EPP/ECP parallel port configured as LPT1,2,3
- Serial Port x 2:** 16-byte FIFO 16C550 serial port jumper selectable RS-232 x 1 +RS-232/422/485 x 1 (Serial Port support +5V & +12V voltage)
- Watchdog Timer:** Programmable 0 ~ 1024 sec.
- Miscellaneous Connectors/Jumpers:** Reset, HDD LED, single +5V or +5V/+12V by FDD type 4-pin power connector, 3-pin ATX control pin
- Power Requirement:** +5V, +12V power by using 4-pin power connector; or, single +5V by using same 4-pin power connector; also support ATX control pin for connect to ATX power connector on backplane
- Dimension:** 185mm x 122mm
- Operating Temperature:** 0 ~ 60°C. 0 ~ 85°C CPU just need metal cooler (don't need fan)

### EX9527

#### Key Specification/Special Features:

**CPU+Chipset:** NS Geode GXLV/GX1 & CX5530A chipset w/ on-chip 6x86-166/233/300/333 MMX CPU, GXLV support low-power type (1.5W~5.4W), GX1 support very low-power type (0.8W~3W)

**Cache Memory:** 16KB L1 cache memory

**I/O Chipset:** NS PC97317 + SMC 669

**BIOS:** Award BIOS, 128KB (Flash) EPROM

**DRAM:** 1 x 144-pin SO-DIMM socket

**LCD/CRT:** On-chip shared-memory 64-bit LCD/CRT, support CRT and 18-bit TFT LCD flat panel up to 1280x1024x8 BPP and 1024x768x16 BPP, support MPEG1 and MPEG2 assist, 44-pin LCD connector

**DSTN signal:** Support optional DSTN board

**Flash Disk SSD:** Socket for 8~288MB DiskOnChip

**Audio:** Optional AC 97 audio soldered on board

**Touch Panel interface:** Optional

**CompactFlash II socket:** Optional CF-2 socket

**Bus type:** PC/104 Connector and ISA bus

IrDA and USB x 2

**Speaker:** Buzzer on Board

**CMOS Backup:** Backup by Li battery

**PS/2 Keyboard/Mouse:** 5-pin header/ mini-DIN

**IDE Interface x 2:** Support up to 4 x IDE devices,

**FDD:** Two 3 1/2" or 5 1/4" FDD, Drives A, B swappable

**Parallel Port:** One bi-directional SPP/EPP/ECP

**Serial Port x 4:** 16-byte FIFO 16C550 serial port jumper selectable RS-232 x 3 + RS-232/422/485 x 1 (Serial Port support +5V & +12V voltage)

**Watchdog Timer:** Programmable 0 ~ 1024 sec.

**Miscellaneous Connectors/Jumpers:** Reset, HDD LED, +/-5V & +12V 4-pin power connector, 3-pin ATX control, 2-pin single +5V power connector

**Power Requirement:** +/-5V, 12V power by using 4-pin power connector; or, single +5V by using 2-pin power connector; also support ATX control pin

**Dimension:** 185mm x 122mm

**Operating Temperature:** 0 ~ 60°C. 0 ~ 85° CPU just need metal cooler (don't need fan)



### EX96420

#### **Key Specification/Special Features:**

**CPU :** Intel Pentium 4 socket 478 CPU up to 3.4Ghz FSB400/533/800Mhz

**Cache :** 2nd level 1MByte

**Memory :** 2 x 184Pin DIMM up to 2GB DDR SDRAM

**Chipset :** Intel 865G + Intel ICH5

**BIOS :** Phoenix - AWARD PnP Flash BIOS

**ATA/IDE :** 2 x Ultra DMA 100, support 4 IDE drives

**SATA/IDE :** 2 x serial ATA 150, support 2 IDE drives

**Watchdog Timer :** 255-level Reset

**Serial Port :** 2 x RS-232 ports (COM1 / COM2)

**Parallel port :** SPP/EPP/ECP mode

**Floppy :** Support 2 Floppy disk drives

**IrDA :** 1 x SIR IrDA 1.1 compliant

**USB port :** 4 x USB 2.0 compliant

**KB/MS :** 1 x PS2 K/B and Mouse

**Chipset :** Intel 82547GI 1000 base-T (Gigabit)

**Codec / Interface :** Realtek ALC202 AC97 Codec, support Mic-in / Line-in / line-out (optional)

**Graphics Chipset :** Intel 865G Extreme Graphics 2 Engine up to 16MByte UMA Video RAM

**Graphics Interface :** CRT support up to 1600 x 1200

**Operating Temperature :** 0°C ~ 60°C (32 ~ 140°F)

**Operating Humidity :** 0% ~ 90%, non-condensing

**Dimension (L x W) :** 338 x 122 mm (13.3" x 4.8")

**Weight :** 0.45 kg (0.99 lb)



### EX9674

#### Key Specification/Special Features:

CPU: P-III class VIA Eden ESP ESP4000/5000/6000 400/533/667MHz  
low-power fanless CPU, 3W/5W, 128K L1 cache & 64K L2 cache, 100/133 FSB, 0~+85°C

System chip: VIA VT8606 (PN133T Twister-T) & VT82C686A/B

Cache: 128K L1 Cache & 64K L2 Cache built in CPU

BIOS: Award/AMI BIOS, 256KB (Flash) EPROM

DRAM: 1 x 168-pin DIMM socket support memory up to 512MB PC133/PC100 SDRAM/ VCM-SDRAM

AGP-4X LCD/ LVDS/ CRT: AGP-4X Savage4 3D/2D LVDS/TFT/DSTN LCD/CRT w/ 8M~32M SDRAM memory (share system memory as display memory), support 1600x1200 TFT/DSTN/LVDS (2-channel 110MHz) LCD & 1920x1440 2D/3D CRT

DVD: Hardware-Assisted MPEG-2 architecture for DVD full-screen video playback

100/10M LAN: Realtek 8139C 100/10M LAN ( or Intel 82559 100/10M)

CompactFlash I/II socket: CF-2 socket for IDE Flash Disk, or, IBM 1.8" MicroDrive 340MB/1GB HDD

USBx2 and IrDA: USB and IrDA pin header on board

Optional Audio: AC97 Audio signal pin on board

Temperature/fan monitoring: 686B on-chip function

I2C: I2C signal pin

Bus type: ISA Bus

Speaker: Buzzer on Board

CMOS Backup: Backup by Li battery

PS/2 Keyboard & PS/2 Mouse: DIN & pin header

ATA100/66/33 IDE Port x 2: Up to 4 x IDE devices

FDD: Two 3.5" or 5.25" FDD or LS120

Parallel Port: Bi-directional SPP/EPP/ECP port

Serial Port x 2: RS-232 x 1 + RS-232/422/485 x 1 (+5V/+12V Power Output in Pin1 or Pin9)

Watchdog Timer: Programmable 0 ~ 256 sec.

Power Requirement: +5V & +12V or Single +5V by 4-pin power connector; ATX Power control pin

Dimension: 185mm x 122mm

Operating Temperature: 0 to +60°C (140°F) and 0~+85°C CPU support fanless application.





## EX-PC104



**EX90070**

AC/DC  
Power Supply



**EX9388L**

386SX-40  
LCD/VGA  
DDC SSD socket, WDT  
I/O, PC104, RS232/485



**EX9389**

386SX-40, 4MB, DOC SSD socket, IDE, PC/104  
RS-232/422/485 (support +5V & +12V), WDT, I/O



**EX9589**

Geode 6x86-166/233/300/333 MMX CPU, WDT,  
PC/104-Plus, DOC, RS232/422/485,  
IDE, FDD, Parallel, I/O, IrDA, USB, Single +5V,  
Optional Audio & DSTN



**EX9812**

Ethernet BNC+UDP+AUI  
Boot ROM socket  
DDC SSD socket



**EX9840**

Sound, DOC SSD socket

## EX-PC104



### EX9842

Sound, RS-232/485\*2  
DOC SSD socket



### EX9860

GPS Socket, COM\*2  
Touch Panel interface



### EX9891

TV-out, DSTN, LVDS, IDE Flash Disk,  
-40V ~ +40V VEE, Hi-current +12V



### EX9893

2-slot PCMCIA Module  
16~64MB IDE Flash Disk



### EX9911

24-bit digital I/O  
3Ch. Counter/Timer



### EX9930

Opto-isolated  
16-bit DI

### PCI AIO Cards



**EX92016:** PCI-bus 16 Channels Isolation Analog Input and digital I/O Card

- 32-bit PCI-Bus, Plug and Play
- 16-CH 12-bit single-ended opto-isolated analog inputs
- Isolation 1500Vrms continuous, 2500Vrms for one minute
- Programmable gain of 1, 10, 100
- Sampling rate up to 100KHz
- Trigger mode: software trigger, timer pacer, external trigger
- On-board A/D 1K WORDS FIFO memory
- Auto-scanning channel selection
- 8 channel opto-isolated digital output
- 8 channel opto-digital input



**EX92026:** PCI-bus 16 channel 12-bit advanced Multi-function DAS Cards

- 32-bit PCI-Bus
- 12-bit analog input resolution
- On-board A/D FIFO memory
- Auto-scanning channel selection
- Up to 110KHz A/D sampling rates
- 16 single-ended or 8 differential analog input channels
- Bipolar or unipolar input signals
- Programmable gain of x0.5, x1, x2, x4
- On-chip sample & hold
- Two 12-bit monolithic multiplying analog output channels
- 8 digital output channels
- 3 independent programmable 16-bit down counters
- Three A/D trigger modes: software, programmable pacer, and external pulse
- Integral DC-to-DC converter for stable analog power source
- 37-pin D-type connector for EX92026



**EX93008:** PCI-bus 8 channel Sync Isolated Analog Output Board

- 32-bit PCI-Bus, Plug and Play, complies with PCI local bus Rev 2.1
- 8-CH 12-bit voltage output
- Fully isolation protection from PC power to external device
- 2500Vrms isolation voltage
- Unipolar or bipolar voltage output range
- Current output available on PCI-93008A
- On board DC-to-DC converter provide voltage and current source
- 8 Isolated digital input channels
- 8 Isolated digital output channels



**EX98354:** PCI-bus Multi-functions Counter / Timer

- Four 8254 chips provide twelve 16 bits down counters
- Multi-configurations of counters / timers:
- Flexible setting for each independent counter
- Clock source could be external, internal or cascaded
- Provide debounce function with flexible setting to prevent from bounce phenomenon
- 8 digital output channels
- 8 digital input channels
- Dual interrupt sources: output of counter#12, external source.
- 37-pin D-type female connector for Timer/counter output



### PCI DIO Cards



**EX94064:** PCI-bus 64-Channel Optically Isolated Open-collector Digital Output Board

64-channel optically isolated digital output /open collector  
Eight isolated bank.  
3750V DC isolation voltage  
high output driving current (125mA / channel)



**EX94132:** PCI-bus 32 channel isolated digital input Board with interrupt and digital debounce

32 Optical isolated digital input channels  
Built-in internal DC-DC converter for detecting dry contacts  
On-board software programmable digital debounce timer  
Software programmable Interrupt handling for 16 input channels



**EX94133:** PCI-bus 32 channel optically isolated open-collector output Board

32 Open-Collector output channels  
High driving output current (130 mA/Channel)  
Four isolated bank.  
Optically isolated for each channel



**EX94164:** PCI-bus 64-Channel Optically Isolated Digital Input Board

32 Open-Collector output channels  
High driving output current (130 mA/Channel)  
Four isolated bank.  
Optically isolated for each channel

### PCI DIO Cards



**EX94232:** PCI-bus 16-CH isolated digital input, 16-CH open-collector output Board

- 16 Open-Collector output channels
- 16 Optical isolated digital input channels
- Built-in internal DC-DC converter for detecting dry contacts
- Software programmable Interrupt handling



**EX94264:** PCI-bus 32-CH isolated digital input, 32-CH open-collector output Board

- 32 Open-Collector output channels
- 32 Optical isolated digital input channels
- Built-in internal DC-DC converter for detecting dry contacts
- on-board software programmable digital debounce
- Software programmable Interrupt handling for 16 input channels



**EX94288:** PCI-bus 16 channel isolated digital input, 16 channel relay output

- 16 Relay output channels
- 16 Optical isolated digital input channels
- Built-in internal DC-DC converter for detecting dry contacts
- Software programmable Interrupt handling



**EX94632:** PCI-bus 32 channel general purpose digital I/O with interrupt

- 32 digital input/output Lines divided into 4 groups
- Each group can be configured to input or output mode
- Four layer SMT, short card
- Provides One 37-pin D-type connector
- Programmable interrupt handling
- Output status readback
- Interrupt triggered by :Channel 0,1



**EX94664:** 64 channel general purpose digital I/O with interrupt

- 64 digital input/output Lines divided into 4 groups
- Each group can be configured to input or output mode
- On-board software programmable digital debounce
- Provides One SCSI 68-pin connector
- Programmable interrupt handling
- Output status readback
- Interrupt triggered by: Channel 0~15

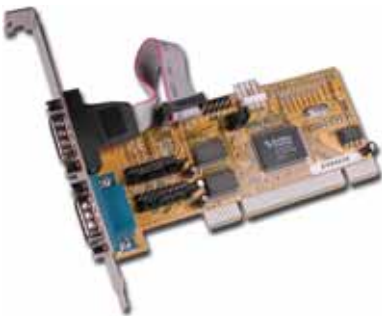


### PCI RS232/485 & Ethernet to Fiber



#### **EX94022:** 2S RS-422/485 PCI Card

Two 16C950 UART Serial Ports over PCI Slot  
PCI 32-bit, PIO Mode with 133MB/S Bandwidth  
Supports RS-485 Auto Transceiver Turn Around by Unique  
PCI IRQ Sharing Feature Eliminates IRQ Conflicts  
Two DB9-male Connectors  
4-wire RS-422/485 and 2-wire RS-485 applications  
RS-422/485 speed up to 921.6Kpbs  
Optional Model: Isolated and 15KV ESD Surge Protection  
Supports Windows 95/98, Me, NT, XP, Win2000, Linux  
Built-in internal DC-DC converter for detecting dry contacts  
Software programmable Interrupt handling



#### **EX94220:** 2S PCI Card

Two 16C550 UART Serial Ports  
PCI 32-bit, PIO Mode with 133MB/S Bandwidth  
PCI IRQ Sharing Feature Eliminates IRQ Conflicts  
Supports both 5V and 3.3V Standard PCI Slots  
Two DB9-Male Connectors (or 2 internal Headers)  
Optional Short Brackets for Low Profile PCI Slot  
Works with all types of I/O peripherals: Modems, Plotters, PDAs, Printers,  
Removable Cartridge Drives, CD-ROM/R/RW, SuperDisk, LS-120, Digital  
Camera and others.  
Supports Win 95/98, Me, NT, Win2000, XP, Linux



#### **EX94241:** 4S/1P 16C950 Serial I/O Adapter

Fully PCI Bus 2.2 and PCI Power Management 1.0 Compliant, works in 5V or  
3.3V Slots  
Fully 16C950 High performance UART channels  
IEEE1284 EPP parallel port  
Baud rates up to 15Mbps in a asynchronous mode and 60Mbps in external 1x  
clock mode  
128-byte deep FIFO per transmitter and receiver  
Automated in-band flow control using programmable Xon/Xoff in both directions  
Automated out-of-band flow control using CTS#RTS# and/or DSR#DTR#  
Complete Software Supports for Win95/98/Me, Windows NT, Windows 2000



#### **EX94280:** PCI 8S Card

8 x 16C950 UART Serial Ports  
PCI 32-bit, PIO Mode with 133MB/S Bandwidth  
PCI IRQ Sharing Feature Eliminates IRQ Conflicts  
One DB62 Female Connector  
One DB62-to-8-DB9-Male cable for 8 Ports  
Works with all types of I/O peripherals: Modems, Plotters, PDAs, Digital Camera  
and others.  
Supports Windows 98, Me, NT, Win2000



#### **EX9543/G(P) PCI Card):** PCI 64/32-Bit Gigabit 1000Base-X Fiber NIC

High bandwidth 1000Mbps Network Speed  
Supports Full-Duplex Mode  
Supports IEEE 802.3x Full-Duplex Flow Control  
Supports 32/64 bits PCI bus  
Compliant with PCI 2.2 Interface  
Supports Jumbo Frame up to 9014 Bytes  
Supports High Level VLAN Filtering Function  
Supports on-board verification of IP headers and TCP / UDP checksums for  
received data  
Supports on-board screening of VLAN tagged Ethernet frames

### EX-Backplane

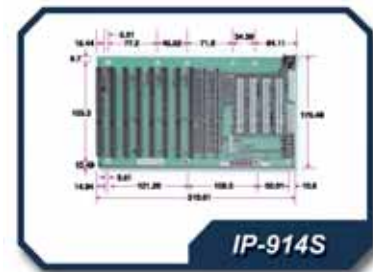
#### ISA Backplane



#### PCISA Bridged Backplane



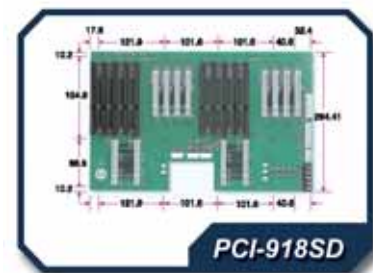
#### ISA Backplane



#### PICMC Bridged Backplane



#### PICMC Bus Passive



### EX-Chassis



EX-9110(1U)

#### EX9110: 1U

Support ATX M/B (Max. to 12" x 9.6")  
 Drive Bays: 0.5" High Slim CD-ROMx1, 0.5" High Slim FDDx1, 3.5" HDD (Hidden)x 3  
 250W~300W ATX P/S  
 Cooling: 4CM Fan (7.0 CFM) x2, 4CM Fan (8.6 CFM)x 3  
 Extension Port: Front Side USB Portx2, Front Side PS/2 Portx1  
 Indicators: Leds for Power ON/OFF, HDD Active  
 Switch: Power O N/OFF, System Reset  
 Dimensions: 483(W) x 44(H) x 450(D) mm (19" x 1.75" x 17.7")



EX-9212ATX(2U)

#### EX9212ATX: 2U

Support ATX M/B (Max. to 12" x 9.6")  
 Drive Bays: 5.25"x1, 3.5"x1, 3.5" (Hidden)x3  
 (Front Installation) PS/2 size single 250~400W ATX P/S (Optional)  
 Cooling: 6CM Ball Bearing Fanx1, 8CM Ball Bearing Fanx1, Removable Air Filterx1  
 Riser Card: 2 or 3 Expansion Slots  
 Indicators: Leds for Power ON/OFF, HDD Active  
 Switch: Power ON/OFF, System Reset  
 Dimensions: 483(W) x 88(H) x 501(D) mm (19" x 3.5" x 19.7")



EX-9414

#### EX9414ATXR/9414SR: 4U

Support ATX M/B (Max. to 12" x 9.6")(9414ATXR)  
 14/15-slot Passive Backplane (9414SR)  
 Drive Bays: 5.25"x3, 3.5"x1, 3.5" (Hidden)(Optional)x1  
 PS/2 size single 250~400W ATX or Mini Redundant 230~300W ATX P/S (Optional)  
 Cooling: 12CM Ball Bearing Fan (108 CFM)(One Optional)x2  
 Indicators: Leds for Power ON/OFF, HDD  
 Switch: Power ON/OFF, System Reset  
 Flexible Hold Down Bar Protects The Plug in Cards From Vibration  
 Removable Air Filter  
 Dimensions: 483(W) x 177(H) x 510(D) mm (19" x 7" x 20.1")



EX-9418

#### EX9418ATXR/94182SR: 4U

Support ATX M/B (Max. to 12" x 9.6")(9418ATXR)  
 14/15-slot Passive Backplane (9418SR)  
 Drive Bays: 5.25"x3, 3.5" x1, 3.5" (Hidden)(Optional)x2  
 PS/2 size single 300W ATX or Mini Redundant 300W ATX P/S (Optional)  
 Cooling: 12CM Ball Bearing Fan (90 CFM)x2 More Fans Can Be Optionally Added  
 Indicators: Leds for Power ON/OFF, HDD  
 Switch: Power ON/OFF, System Reset  
 Flexible Hold Down Bar Protects The Plug in Cards From Vibration and Fans Can be added onto It  
 Removable Air Filter  
 Dimensions: 483(W) x 177(H) x 510(D) mm (19" x 7" x 20.1")

### EX-KVM



#### **EX96104: 4 PORT KVM Switch (Desk Top or Rack mount)**

4-computer port

Daisy chain 3 layer capability switch operation: button

hot key, for Win NT/9x/Me/2000

Linux/Unix; Novell



#### **EX96108: 8 PORT KVM Switch (Desk Top or Rack mount)**

8-computer port

Daisy chain 3 layer capability switch operation: button

hot key, for Win NT/9x/Me/2000

Linux/Unix; Novell



#### **EX96116D: 16 PORT KVM Switch (Rack mount)**

16-computer port

Daisy chain 3 layer capability switch operation: button

hot key, for Win NT/9x/Me/2000

Linux/Unix; Novell



***For OEM/ODM Only***



## Fiber Optic to RS232/422/485 converter

### EX9541/EX9542

- Full-duplex, bidirectional transmission mode
- Avoids lightning strikes and EMI/RFI interference
- Transmission rate up to 115Kbps
- Direct plug-and-play
- Easily mounted on a DIN-rail, panel or piggyback
- Prevents damage from electronic discharge
- Stable and error-free data transmission
- Automatic internal RS485 bus supervision
- No external flow control signals required for RS485
- EX9541: Multimode optical fibers allow transmission distances up to 2.5Km
- EX9542: Single mode optical fibers allow transmission distances up to 15Km
- Transient suppression and over-current protection on RS422/485 data lines
- Reserved space for termination resistors
- LED for power and data flow indication



## Ethernet to Fiber Optic Converter

### EX9543, EX9543/G (1000Mbps)

EX9543 is a Fast Ethernet 100 Base-TX to Fiber 100 Base-FX converter. It features one fiber port with SC, ST, MT-RJ or VF-45 connector and one twisted pair port with RJ-45 connector.

It converts electrical signal from 100 Base-TX side into optical signal at 100 Base-FX side and vice versa. Support Fast Ethernet 100Base-TX and 100 Base-FX Multiple choices for fiber connectors:

SC / ST / MT-RJ / VF-45 for multi-mode and single-mode

Fiber Cable: 50/125, 62.5/125, or 100/140μm multi-mode

80/125, 8.7/125, 9/125 or 10/125μm single-mode

Data Transfer Rate: 100Mbps auto-duplex-negotiation

100Mbps for half-duplex mode

200Mbps for full-duplex mode

LED Indicators: FX Tx, Link, TX Tx, Link, FDX, POWER

Power Requirement: 1A @ +5V (from MII Connector)

Ambient Temperature: 0 to 50





### Dual band GSM/GPRS serial modem

#### GM29

The Sony Ericsson GM29 is a dual band (GSM 900/1800MHz) GSM/GPRS serial modem that offers integrators an instant and cost-effective M2M solution for getting applications to market fast.

The GM29 is a plug-and-play modem with an integral SIM card reader and standard connector interfaces. By plugging the RS232 connector directly into an application or computer the GM29 becomes ready to use as a wireless modem. The modem can send and receive data by GPRS, HSCSD, CSD, SMS, and fax as well as handle voice calls. The GM29 is a powerful and flexible solution that can be used in virtually any imaginable application and is ideal for vending, monitoring and control, security/alarms and fleet management.

The same levels of excellence that have been trademarks of Sony and Ericsson worldwide go into every radio device design. Sony Ericsson applies the same R&D and manufacturing expertise in these products as it does in its world-class mobile telephones. M2M Com Product Unit of Sony Ericsson Mobile Communications is ISO-9001 Certified.



### Smart Wireless Lan Ethernet Clint

#### EX9316

##### High performance WLAN Ethernet client; no drivers required

Excellent receiver sensitivity and TOPS's optimized built-in antenna provide maximum range and signal integrity. Connects to a PC Ethernet port, so no driver install / uninstall is necessary.

##### Wi-Fi compliant to ensure network compatibility

Tested and certified for interoperability with Wi-Fi (802.11b) Access Points and network adaptors; the global industry-standard for wireless networking.

##### Operating System independent

The **EX-9316** Smart Wireless LAN Ethernet Client connects to an Ethernet port, so it is completely OS independent. Configuration is done via web browser, making set-up and firmware upgrade simple and intuitive. This also makes it easy to add wired network devices, such as printers and web cameras, to a wireless LAN.

##### Lowest Total Cost of Ownership

TOPS has a global reputation for providing the highest quality, feature-rich WLAN products with extremely competitive pricing.



## EX94009



### **Provides 4 Serial Ports over USB Port**

Fully 16C550 UART Compatible

Provides 4 DB9-Male Connectors

DC Jack for Optional DC 5V Power Input

Optional DC 5V over DB9-Male Connector

Supports Windows 98, Me, XP, Win2000 hot key, for Win NT/9x/Me/2000

## EX98009



### **Provides 8 DSUB Connectors**

Baud Rate from 75 bps to 6Mbps

512-Byte Deep FIFOs for each Port

Supports 5,6,7,8 Data Bits

Odd, Even, Mark, Space, or None parity mode

Supports 1, 1.5 and 2 Stop Bits

Supports USB Bus Power

DC Jack for Optional DC 5V Power Input

Optional DC 5V over DB9-Male Connector

Supports Win98, Me, XP, CE, Win2000, 2003

## OEM/ODM Facility

### ISO14001

For OEM/ODM Business requirement that we would like to release our manufacture facility and ISO 14001 Management System Certificates to our distributors for ref.

**Certificate No: 0147-2003-AE-RGC-RVA**



### Facility

#### ---SMT Equipment



#### ---DIP Equipment



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